

ENCYCLOPEDIA OF MODERN EDUCATION

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ENCYCLOPEDIA OF MODERN EDUCATION

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EDITORS' FOREWORD

The picture of Mark Hopkins sitting at one end of a log and a student sitting at the other end, symbolizes to many people the apparent simplicity of education. Yet education today is far more complex than so charming a picture suggests.

Ours is an age of specialists, and it is not surprising that education, too, should have its specialists. We have our experts in test construction and our specialists in curriculum building. We long have had educators who centered their attention on methods of teaching, and even on the methods of teaching a single subject, such as reading, but now we have those who specialize on a single phase of the teaching of reading, for example, remedial reading, and even on one aspect of remedial reading, such as the clinical treatment of the child who has not learned how to read despite his normal or superior intelligence. One has only to consult the catalogue of any major university which has a graduate school of education, or the directory of any state department of education, to see how far we have gone in the subdivision of the study of education into specialties.

Much of the credit for the forward looking changes that have occurred in education in recent years rightfully belongs to the specialists, who have influenced professional thought and practice in many ways. By focusing their efforts on a single aspect of a complex process, they have been able to see problems long unnoticed, and to effect reforms sorely needed. To be sure, the path of educational change has not always been a straight line. More than one proposal which was hailed as an epoch making discovery and applied immediately—sometimes with more enthusiasm than understanding or critical judgment—was subsequently found to be neither a discovery nor an improvement. It is nevertheless true that our specialists have made a significant contribution to modern education and that the future holds the promise of even greater contributions by them.

And yet the image of Mark Hopkins and his student continues to haunt the imagination, for the teacher-pupil relationship remains the fundamental one in all education. To a much greater extent than is sometimes recognized, the contributions of educational research become significant only as they are understood and applied by individual teachers, principals, and superintendents. If teachers and administrators see the total pattern of education, as well as the specific tasks on which they are engaged, they can accelerate the pace of educational progress. By its summary of present achievements, the *ENCYCLOPEDIA OF MODERN EDUCATION* may stimulate the extension of desirable policies and procedures and encourage the further development of education.

Professional educators, however, are not the only ones who have a vital interest in educational principles and practices. Just as the school has become increasingly aware of the world that lies beyond its walls, so has the community taken more and more interest in what goes on at school. Traditionally, education in the United States has always been a matter of public concern; it is significant that the board of education, the body that decides matters of policy, is generally composed of laymen and not of professional educators. For educational advance to be translated from theory into prac-

EDITORS' FOREWORD

tice we need an alert, informed public opinion that is sensitive to the implications of educational theories and that understands the goal towards which the school is striving. Public opinion, however, tends to see the immediate problems rather than the more basic issues. Even today it is only the exceptional parent who views educational problems from a broader point of view than that of the immediate future of his child. Taxpayers' groups, for example, often press for the deletion of specific items from the annual school budget without understanding that the economy may be a wasteful one in the course of years. It is clear, however, that in controversies between the school and the public neither side is always right. The informed layman may sometimes see social and economic implications in an educational program to which teachers and supervisors are not sensitive because of their complete identification with it. Thoughtful public opinion may serve as a corrective to professional judgment. If the *ENCYCLOPEDIA OF MODERN EDUCATION* adds to the understanding which public-spirited citizens have of educational problems, all of us who have helped to prepare the volume will consider our efforts well rewarded.

This volume is intended also for a third group of readers who are neither professional educators nor laymen. They are the psychologists and the sociologists, the pediatricians and the social workers, the legislators and the journalists, and the members of all the other professions which come in frequent contact with the schools' activities. To these colleagues in related fields the *ENCYCLOPEDIA OF MODERN EDUCATION* offers a means of deepening their insight into the problems which confront the schools of today.

One of the first problems in the preparation of an encyclopedia of modern education is the selection of the topics to be included. The master list of the items treated in this volume was prepared only after many listings of educational topics had been analyzed and after the tentative master list had been examined by the members of our advisory board and by many other educators representing specialized fields. The present master list reflects a consensus of informed opinion; it is no hastily prepared record of our editorial intuition. It was often disappointing to omit a given topic, yet the omission of relatively less urgent subjects was necessary in order to assure the adequate treatment of more significant problems. The selection of items was complicated further by the fact that modern education is not an isolated body of facts. It is often difficult to decide where to draw the outer boundaries. There are, for example, no fixed lines of demarcation between general psychology and educational psychology, nor any ready means for determining when educational statistics become more mathematics than education. Confining itself to areas that are clearly within the field of education or that lie in closely related fields, the *ENCYCLOPEDIA OF MODERN EDUCATION* nevertheless reflects the surprising breadth of educational activities. The articles range from as specific an item as the teachers' legal responsibility for accidents occurring in school to as fundamental a question as the role of indoctrination in American education.

In some instances it was possible to increase the scope of the volume by making extensive use of cross references. We were able to refer the reader to the specific article in which a concept or a term is explained and avoid a great number of overlapping articles. Similarly, the practice of appending brief, carefully selected bibliographies to all important articles enabled us to present a concise article that would meet the immediate needs of most readers and to indicate where those who need further information would find it.

EDITORS' FOREWORD

Typical of the problem of the selection of topics was the difficulty experienced in the field of comparative education. An encyclopedia of modern education should devote considerable attention to the educational practices in other countries. The difficult question is how much attention it should receive. To have included discussions of all the educational systems in the world would have left little room for anything else. Because of the influence that the concept of hemispheric solidarity is exerting on educational thinking, we have included all of the countries in the Americas. We have also treated all of the major countries in the rest of the world and enough of the smaller countries to indicate the variety of educational practices and problems found there. In all such questions of selection we sought the advice of our advisory board and of other competent authorities; for the final decision, however, the editors alone must accept the responsibility.

Another major problem was that of approximating objectivity in a field that is often sharply controversial. In some instances, separate articles were prepared by exponents of different points of view. Thus Dr. W. C. Bagley prepared an article on *THE ESSENTIALISTS* and Dr. W. H. Kilpatrick wrote the article on *PROGRESSIVE EDUCATION*. In other instances, it was possible to present various points of view in the same article. Thus, the article on *PROMOTION* is an objective statement of various theories and practices in promotion.

The typical article stresses neither detailed historical treatment nor the kind of specialized techniques that a research worker has to master. Our major interest lay in the preparation of a volume that would aid the student of education as well as teachers, administrators, and other interested persons to find clear and concise explanations of the basic terms, ideas, and movements of modern education. Our major criteria for judging the articles were: accuracy, clarity, impartiality, conciseness, and helpfulness.

Although the space assigned to an article may be a rough measure of its importance—the article on *INTELLIGENCE* is longer than the article on *CENTRAL TENDENCY*—length, alone, is an inadequate measure of significance. Some concepts are so involved that they must be explained at length if they are to be understood by all. In other instances, we sought to avoid both duplications and serious gaps by treating several related concepts in a single comprehensive article.

By limiting the scope of this volume to modern education, we both simplified and complicated our editorial problems, for the word *modern* has various connotations. The word *modern* does not imply an evaluation. As used in the title, it does not mean *up-to-date* as contrasted with *outmoded*, and it does not imply *progressive* rather than *conservative* or *traditional*. To understand the education of today, one must understand more than merely contemporary education, for educational problems have a background which must be known if they are to be appreciated. On the other hand, much that seems important in the contemporary scene may prove to be relatively trivial within a few years. We have, therefore, tended to stress those phases of our heritage from the past which are most useful in helping us to understand the education of today, and we have emphasized those features of present education which are likely to retain their significance in the future. Thus, our selection of educators whose professional biographies are included in this volume represents no attempt at bestowing the accolade of inclusion in this volume upon those educators who are most active and influential in the contemporary scene, but it does include such

EDITORS' FOREWORD

men as Comenius, Mann, Pestalozzi, and Sarmiento, as well as Dewey, Piaget, Terman, and Thorndike.

How much value an encyclopedia of modern education will have depends largely on its contents, but a great deal depends, too, on the way in which it is used. No book is a substitute for a library. An encyclopedia misses its true function if it appears to contain all the answers to all the questions a reader will ask. An encyclopedia should answer the reader's immediate questions, but more frequently, it should stimulate further questioning and continued reading. The bibliographies which are appended to all of the major articles and to most of the shorter ones are an invitation to the reader to proceed further, an invitation the contributors and the editors hope will be accepted frequently, if not regularly.

There is much that an encyclopedia of modern education can offer. An encyclopedia should present concise, authoritative explanations of the terms, concepts, and practices that are referred to in educational literature. By presenting clear cut and accurate definitions, free from dogma, it should help the student of education to combat the vagueness with which words are often used and it should encourage a greater degree of definiteness in professional discussions. As a reference book, an encyclopedia should clarify the reader's difficulties without necessitating research in a large professional library. It is a great convenience to have a single volume that explains what is meant by the constancy of the Intelligence Quotient as well as what is meant by indoctrination, by the Chicago Plan and by the implications of mental hygiene. Though reading an article in an encyclopedia is never an adequate substitute for reading an authoritative book on that subject, it is often sufficient for the person who has neither the interest nor the time to read a book in answer to every question that comes to mind. In recent years, for example, many people have become curious about the kind of educational system that has helped to shape the Japanese soldier. For most readers, the article on Education in Japan will suffice to explain the part that the inculcation of specific attitudes plays in Japanese education. Similarly an article on teachers' contracts should answer many of the reader's questions without necessitating the reading of a volume in educational law.

An encyclopedia of modern education may also be a useful guide to further professional reading. The many demands that are made on teachers and administrators often lead to a narrowing of reading interests. The teacher who is interested in the new trends in curriculum construction may well begin his study of the problem by reading an encyclopedia article on the curriculum as well as the related articles on such topics as *CORRELATION (CURRICULUM)*, *FUSION*, *INTEGRATION*, *CORE CURRICULUM*, *AREAS OF LIVING*, *BROAD FIELDS CURRICULUM*, *UNIT PLANNING AND TEACHING*, and the like.

Even though one rarely sits down to read an encyclopedia from beginning to end, browsing through it has its own compensations. There is more than passing satisfaction in learning that children who have been deaf from birth may nevertheless be taught how to speak (*DEAF, EDUCATION OF THE*); that the parent has no right to demand that his child attend any particular school, the school board being vested with broad discretion to assign students to such schools as in its judgment may be best (*PARENTS, RIGHTS OF*); that Black Mountain College seeks to achieve the ends of liberal education by extending to students the opportunity of living and working with their professors (*BLACK MOUNTAIN COLLEGE*); that

EDITORS' FOREWORD

gifted university students in the Soviet Union may receive a stipend from the government that is larger than the salary paid some of their teachers (*UNION OF SOCIALIST SOVIET REPUBLICS, EDUCATION IN*); that the properties of the public elementary and secondary schools of the nation are valued at about eight billion dollars (*FINANCE, SCHOOL*); that Sarmiento, the "Horace Mann of South America," returned to his post as superintendent of schools after completing his term of office as president of his country (*SARMIENTO, DOMINGO FAUSTINO*); that the system of Braille now used so widely as a means of enabling the blind to read was developed from a code used by the French Army (*TOUCH READING*); and that legally there are few specified qualifications for membership on the board of education (*BOARD OF EDUCATION*).

Any volume as comprehensive as this must be the product of many minds. It is the contributors who give the volume the merit it has, and it is in anticipation of the aid the *ENCYCLOPEDIA OF MODERN EDUCATION* will give to readers that we thank the authors publicly for their assistance. Since there are almost two hundred contributors, space limitations prohibit our enumerating the ways in which each of them has made this work possible. The initials which appear at the end of each article are those of the writer or writers who prepared it, but we found no convenient way of indicating the names of our contributors and advisers who passed on the article before it was published. That our contributors come from all the major institutions for teacher education in this country, from school systems as well as from colleges and universities, from foreign countries as well as from our own, and from other fields as well as from education, indicates that the progress of education depends on no small group of people or institutions.

We are grateful to the members of the Advisory Board, without whose counsel and guidance our task would have been appreciably more difficult, if not altogether impossible. They have given generously of their time and have helped at every stage from the preparation of the master list to the reviewing of the articles. Their influence can be seen throughout the volume.

The satisfaction of working with our collaborators was not without its sorrows. Professor Frank E. Mankiewicz, who was one of the first members of the Advisory Board, died soon after the inauguration of this project. Since he did not have the opportunity of seeing any of the completed articles, we have not taken the liberty of listing him among the members of the Advisory Board. Our gratitude for his early help and encouragement and our sorrow at his death are none the less real. President R. A. Kent of the University of Louisville (Kentucky) died while the volume was in press. It is unfortunate that President Kent did not live to see his material in its place in the published volume.

Altogether, some two hundred men and women have cooperated in producing this volume, largely because of their faith in the enduring achievements of education and their hope for its future. It is in their name that the editors offer the *ENCYCLOPEDIA OF MODERN EDUCATION* to their professional colleagues and to the growing number of laymen who appreciate their stake in modern education.

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A. Q.—See EDUCATIONAL AGE.

ABILITIES, CORRELATION OF—See SCHOLASTIC ABILITY.

ABILITY GROUPING—See CLASSIFICATION OF STUDENTS.

ABILITY, SPECIAL — See SPECIAL ABILITY.

ABNORMAL CHILD—See ATYPICAL CHILD; EXCEPTIONAL CHILD.

ABNORMALITY. *Abnormality*, in psychological language, has almost assumed synonymy with *atypicality*. (See ATYPICAL CHILD.) The average behavior or attitude or ability is defined as the norm (*q.v.*). By definition, 50% of the population is expected to show abilities and characteristics above and 50%, below the median. Behavior is considered abnormal only when it is so far away from the norm that relatively few other persons exhibit that degree of it. This psychological and statistical use of the words norm, normal, and abnormal, carries no connotation of goodness or badness. The judgment of whether the abnormal is good or bad must be made separately. Sometimes abnormality in either direction is considered bad, as in traits like weight, blood-pressure, stinginess-generosity, or aggression-submission. Sometimes great value is set upon abnormality in one direction, as upon high intelligence or high musical ability. In traits related to mental health, atypicality in either direction means maladjustment; thus, both extreme conceit and extreme modesty may lead to difficulties in effecting personal and social adjustment. B.B.F.

ABREACTION. The process of reliving earlier life experiences which have led to mental conflicts. It is effected in a psychotherapeutic situation (*i.e.*, treatment interview between therapist and patient), and involves the recounting of the earlier life ex-

perience together with an expression of the accompanying or final emotion. In this manner the emotion attached to the original events is discharged and loses its capacity to produce distorted or pathological attitudes and reactions. Its value is largely dependent upon the skill of the therapist. Abreaction is, therefore, no simple process to be set in motion merely by the teacher's inviting the pupil to relax and to speak freely. It is a technical phase of therapy that should be employed only by those who have the requisite psychiatric training and experience.

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ACADEMIC COSTUME. Academic costume refers to the caps, gowns, and hoods worn by students, faculty members, and school officials. Originally the use of academic costume was limited to institutions of higher education, though it is now used in many secondary schools. The long, looseflowing gown, usually black, is a survival of the clerical gown of the middle ages, when all scholars were cleric. The hood is a modification of the Friar's hood, which was attached to the robe and was at first intended as a covering for the head. Academic costume was first used at Cambridge University in 1284. In England today each university has its own style of robe and hood, and each department in the same university has its own style of robe.

The movement to use academic costume in the United States, sponsored by students, came in about 1880. Caps and gowns were worn by the seniors at Williams in 1883, and by the seniors at Wellesley in 1884. Bryn Mawr faculty and seniors adopted academic costume in 1885. By 1890 the custom was general. Because of diversity of costumes, a commission, appointed in 1893, drew up a code of academic dress which is now followed

in the United States by all colleges with the exception of a few which still follow the English costumes. The Intercollegiate College Bureau of Academic Costume, Albany, New York, has a register of all official college colors used on academic costumes. The color of the robe is black; the style of the robe differs for the various degrees.

Intercollegiate System of United States:

Gowns. Undergraduate—black, no hood, rounded or pointed sleeve, open or closed.

Bachelor's—black, with hood, long pointed sleeve, open or closed.

Master's—black, preferably silk, long closed sleeve, with slit near upper part for arm opening, with hood.

Doctor's—black, preferably silk, with round bell sleeve; gown faced down front and barred on sleeves with black velvet or velvet wholly or in part of the degree color, with hood.

Hoods. Same material as gown; different shapes for bachelor's, master's, and doctor's; lined with silk of the official colors of the institution; trimmed with velvet of the color indicating the degree.

Degree colors. Arts and Letters, white; Theology, scarlet; Laws, purple; Philosophy, blue; Science, gold-brown; Fine Arts, brown; Medicine, green; Music, pink; Oratory, silver-gray; English, orange; Pharmacy, olive; Dentistry, lilac; Vet. Sc. gray; Forestry, russett; Library Science, lemon; Pedagogy, light blue; Commerce (inc. Accounting), drab.

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ACADEMIC FREEDOM. The meaning of the term *academic freedom* varies, depending on whether the reference is to institutions of learning or to teachers, and depending further on the grade or level of the institution to which the term is applied.

In universities and colleges, academic freedom implies for teachers freedom to engage in research and to publish the results of such research, subject only to the competent performance of their academic duties. The principle of academic freedom asserts the teacher's freedom to discuss his subject in the classroom and to present his views on

controversial issues, provided that he accords similar treatment to views other than his own, and provided further that he does not introduce controversial matter that lies outside the field of his specialization. A like freedom is claimed for teachers in the secondary and elementary schools, but there is added a further limitation which requires of teachers in such schools a respect for the feelings of the community and particularly of the parents directly concerned.

Customarily, pronouncements on academic freedom comprise a clause vouchsafing for the teacher the exercise of the same freedom of expression and action outside the classroom as is the common right of all citizens. These assertions of the fact that the teacher does not forfeit his civil rights by virtue of his membership in the profession are a repeated reminder that communities and public officials have not hesitated to impose special restraints and regulations on the extra-mural or even private behavior of teachers. Such special restrictions, while not as universally imposed as they were formerly, are still applied in many school communities.

The teachers who are usually subject to such controls are those in elementary and secondary schools, but college and university teachers are by no means secure against reprisals if their conduct outside the classroom, legal though it be, proves offensive to powerful elements in the community. Indeed, one of the most flagrant denials of academic freedom in recent years was a case involving the teaching of mathematical logic by the world's most distinguished exponent of the study.

It is generally admitted that religious institutions or proprietary institutions which are organized for special purposes may impose limitations of academic freedom on the teacher, provided such restrictions are clearly stated as a condition governing the acceptance of appointment.

The principles of academic freedom derive their importance from the fact that recognition or denial of the teacher's right to certain freedoms vitally affects not only the students but society itself. If schools, colleges, and universities were established for the sole purpose of perpetuating the achievements of the past, there would be fewer attempts to impose restraints on those who teach. But schools, and more especially schools of university and

collegiate rank, carry an added responsibility. On them rests also the obligation of testing the validity of facts, of reassessing values, of inquiring anew into problems still unsolved, and of announcing their findings. These activities which by their very nature are a challenge to the *status quo* in the sciences and in the social arts inevitably involve teachers and schools in controversies with those who have a share in their support or governance. The teacher is a citizen; but he is also an instructor of students less mature than himself. By knowledge, experience, and the prestige of his status, he enjoys advantages which if abused may deprive students of their rights to well-informed and unbiased instruction.

The teacher whose freedom is likely to be challenged is not the free-lance scholar who renders a service of teaching outside of institutional auspices. In almost all cases he is a member of the faculty of an institution which assumes responsibilities for its students. In these obligations the teacher shares when he accepts appointment, and in doing so he is expected to accede to a curtailment of his right to complete independence of action. The question of how much curtailment is valid lies close to the heart of the issue in most conflicts involving the principles of academic freedom.

No subject of instruction, and no level of school is entirely secure against the negation of the teacher's right to freedom of teaching. While the difficulties arise most frequently in the social and biological sciences, teachers of philosophy, literature, and religion are often the targets of official and unofficial censure. Neither are the restraints confined to direct instruction. They may involve dictation or censorship of textbooks, the control of the curriculum, or the arbitrary imposition of instructional procedures. In practically all categories, it may be added, cases have been recorded in which teachers have themselves been found guilty of abusing the rights of free teaching.

Concepts of academic freedom have developed traditionally not only in relation to the rights of teachers, but also in relation to the rights of students. Since, however, any principles about student rights must derive from theories about the purpose of the educative process and about the place of the learner

in that process, there have not been developed any formulations about the freedom of the learner that are as generally accepted as are the definitions of freedom of teaching. Each school of educational thought evolves its own conclusions about the freedom to be accorded to the learner. These it derives from its basic social and psychologic commitments. The term academic freedom has tended therefore to become exclusively associated with teachers' rights and with the freedom claimed by schools and universities to seek and disseminate knowledge.

Prior to the publication of *The Origin of Species*, it was generally assumed by teachers as well as laymen that the chief function of colleges and universities was the dissemination of existing knowledge. The issues that divided university men had been few in number and, with one notable exception, had not been of a kind to test the validity of any pronouncement on academic freedom. That exception was the question of Abolition. Its espousal led to four or five dismissals in American colleges and fostered wide discussions in university circles about the limits of academic freedom.

Further discussion of the issues involved in the rights of free inquiry and free teaching was stimulated by the controversy which developed around the theory of evolution. The denominational communities under whose auspices most American colleges had been founded saw the new biology as a threat aimed at the very life of the institutions which they were supporting. While it is generally assumed that science emerged triumphant in this bitterly contested battle, the Scopes trial in Tennessee (1925) serves as a dramatic reminder that less than twenty years ago the right of teachers to teach the truth as they understand it was still being effectively challenged and denied.

Teachers were dismissed from their posts in universities, colleges, secondary and elementary schools during World War I for entertaining views too pacifistic to meet with the approval of school administrators or boards of trustees. In more recent years a school ordinance enjoined teachers in the District of Columbia from making any reference to the form of government adopted by the Union of Socialist Soviet Republics.

These and similar instances have stimu-

lated a number of organizations to exercise a special vigilance over schools with a view to contesting any and all infringements of academic freedom. The American Association of University Professors, The American Federation of Teachers, and The Civil Liberties Union have devoted themselves persistently to the defense of teaching.

The beginnings of academic freedom may be traced to the Middle Ages when popes, emperors, and kings, in the effort to induce university bodies to establish themselves within the realm, guaranteed them their independence from civil jurisdiction. Thus Frederick I, or 'Barbarossa,' granted the students of Bologna courts of their own and complete autonomy in the management of their affairs. Similar grants were made by Philip Augustus to the University of Paris and by Rupert I to Heidelberg.

Not, however, until centuries after the independence of universities in the regulation of their own affairs had been acknowledged did the rights of the teacher to freedom of inquiry and expression receive any recognition. It was in Germany, early in the eighteenth century, that the claims to *Lehrfreiheit*, or academic freedom as we now understand it were first asserted and subsequently approved. Göttingen, founded in 1732, was among the first universities to extend such freedom to its faculty.

The second half of the eighteenth and the first half of the nineteenth centuries witnessed the extension of these rights to universities both in Germany and other countries. "This institution," wrote Thomas Jefferson at the founding of the University of Virginia (1819), "will be based upon the illimitable freedom of the human mind. For here we are not afraid to follow truth, wherever it may lead, nor to tolerate error as long as reason is left free to combat it." It is easy to attach to Jefferson's pronouncement and to similar declarations made more than a century ago greater significance than they merit. The true measure of their strength remained still to be tested during the second half of the nineteenth century when, in America as elsewhere, controversies developed over issues which divided men into bitterly opposing camps. (See LOYALTY OATHS.) J.G.C.

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ACADEMY. The term *academy* has appeared at various times in the history of education. Plato first used it as the name of the school he founded in 386 B.C. This was a cooperative venture of teachers and students for the teaching and learning of philosophy, mathematics and science. It became the model for other schools designed to offer a "philosophical solution of the problem of life". During the fifteenth century academies designed to promote literary studies were founded in all important Italian cities. These had many of the characteristics of their Athenian predecessors.

The name again appeared in England during the seventeenth century, applied to the school founded by John Milton to provide a classical education concerned more with substance than with form, a revolt against the formal humanistic school.

The first academy in the United States was founded in Philadelphia in 1751 by Benjamin Franklin. This later became the University of Pennsylvania. The academy movement spread rapidly until during the first half of the nineteenth century this form of semi-private school was the dominant type of secondary education in this country. It all but replaced the earlier Latin Grammar School and became the precursor of the American public high school. More than 6,000 schools enrolling over 263,000 pupils taught by at least 12,000 teachers existed by 1850.

The academy differed from the Latin Grammar school in certain basic respects. (1) It was not associated closely with the colleges and was therefore not primarily college preparatory. (2) Its curriculum included the more useful subjects of the day, in addition to mathematics, science, modern languages and history. (3) It provided a "rounding out" education for those who had completed the English education of the common school. (4) It gave general preparation for business

life and the rising professions. (5) Building on top of the education of the common school rather than parallel with it as was the case with the Latin Grammar School, it served as an introduction to the more democratic high school of today.

The academy in the United States was therefore an expression of the philosophy of realism applied to the education of youth and served as the transition from the traditional classical school dominated by the colleges to the American public high school which is much more an expression of the wishes and needs of the people. By the beginning of the twentieth century the academy had been almost entirely replaced by the public high school. (See SECONDARY EDUCATION.)

The few which remain are private schools and frequently college preparatory in nature. A number have been converted into private military schools.

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ACCELERATION—See PROMOTION.

ACCIDENT PREVENTION—See SAFETY EDUCATION.

ACCOMPLISHMENT QUOTIENT—See EDUCATIONAL AGE.

ACCOUNTANCY EDUCATION—See BOOKKEEPING AND ACCOUNTANCY EDUCATION.

ACCOUNTING, SCHOOL—See FINANCE, SCHOOL.

ACCREDITING. Accrediting is the approving by a standardizing association of an educational institution of any grade because it satisfies the requirements set for approval by that association.

The act of accrediting various educational institutions—public and private or elementary, secondary, and higher—was not undertaken seriously until the latter part of the nineteenth century. Four problems brought accrediting to the fore. First, what should be the requirements for entrance to freshman work in college? If high school graduation was to be accepted, what standards, if any, should be met by high schools that hope to have their graduates accepted? Second, in-

stitutions of higher education needed help in determining whether given individuals should be admitted to graduate study. Third, each of the 48 states faced the problem of securing satisfactory teachers to serve in the elementary and secondary schools of the state. Fourth, each state had a responsibility for licensing in the various professions—law and medicine, for example.

The accrediting agencies include state boards or departments of education, state universities, intercollegiate standing committees, and state college associations within the various states. There are also regional groups composed of representatives from colleges and secondary schools organized in the New England States, the Middle Atlantic States, the Southern States, the North Central States, the Northwestern States, and the Western States. These organizations accredit both secondary schools and colleges within their respective areas. There are professional organizations such as those in law and medicine that accredit institutions in their particular fields.

The process of accrediting in its complete sense involves three activities. (1) Certain minimum standards are prescribed that the institutions desiring accreditation must meet. (2) Institutions must be visited to determine whether they are maintaining such minimum standards. (3) A list of all institutions meeting these standards is then published. Not all accrediting agencies perform all these functions; some perform only one or two of them.

The accrediting of educational institutions, as it is carried on in the United States, is unknown in countries where education is controlled by the central government. But with education locally controlled, as it is in this country, some plan is essential whereby the people may know the standing of the various elementary, secondary, higher, and professional schools. The multiplicity of accrediting agencies has created many problems, and educational institutions have often suffered from their exacting demands. A recent investigation by the Office of Education recommended, after months of study, that the work of accrediting be changed "in the direction of placing greater responsibilities upon appropriate agencies in the several states."

The early work of accrediting was based

upon certain quantitative measures through which an appraisal was made of an institution's physical plant, its monetary support, its teaching staff, and its equipment. If the institution failed to meet these quantitative standards, it was not accredited. Beginning in 1929 a shift was made in the direction of qualitative standards. An institution was to "be judged in terms of the purposes it seeks to serve." There was also a tendency to judge in terms of the "total pattern" of a given school; if a school was low on financial support but had an unusually strong teaching staff, it might well be judged an effective institution. This change does not seek less quantitative data in arriving at a decision as to accrediting; it demands far more. It takes these more extensive data and arrives at a picture of the institution's effectiveness rather than judge the school upon the basis of a few criteria that are easily checked.

In line with this change the new "evaluative criteria" being applied to secondary schools furnishes a more intelligent basis for accrediting the state's secondary schools. (See EVALUATION.) These criteria involve an analysis of the school's curriculum, pupil activities, library, guidance activities, instruction, outcomes, staff, plant, and general administration. Standards are devised for each of the categories. The school being studied is appraised in the light of how well it seems to be doing its job despite lacks in one or more of these categories. It is being recognized, likewise, that the mere accrediting of a school is only the initial step in the complete process of helping the school to make changes that will make it an even more effective educational institution. A.O.H.

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ACHIEVEMENT AGE—See EDUCATIONAL AGE.

ACHIEVEMENT QUOTIENT — See EDUCATIONAL AGE.

ACHIEVEMENT TESTS. Tests designed primarily to measure the attainment of an individual or group of individuals in a school subject or activity, as in arithmetic, reading, or history. Most published achievement tests are standardized tests (*q.v.*). An achievement test may be either a single test to measure the ability in a single subject or a *battery of tests*, i.e., a number of tests ordinarily administered as a unit but designed to measure achievement in several different subject matter fields (e.g., Metropolitan Achievement Tests). The *survey test* is one designed to measure the average achievement of large age or grade groups. Survey tests, if used solely for group measurement, need not meet the high standards of reliability set for measures of individual achievement.

Achievement tests usually consist of a great many objective type questions (See OBJECTIVE TESTS AND EXAMINATIONS) to facilitate scoring. This emphasis on objective-type questions has been criticized on the ground that they tend to stress factual learning and the acquisition of specific skills more than the appreciative and the interpretative aspects of learning. The use of objective questions is not always feasible, as, for example, when we wish to measure the pupil's attainment in penmanship, where a *quality scale* is more appropriate. A quality scale is a device for obtaining a rating of the degree of excellence of a given sample of work. Specimens of drawing, penmanship, or composition are evaluated by a group of judges, assigned a value from zero to one hundred, and arranged on a chart in terms of order of merit; a rating may then be obtained for a given specimen of work by matching it with the one on the scale which it most closely resembles.

The scores on achievement tests may be interpreted in terms of their norms (*q.v.*) or used as the basis for converted scores (*q.v.*).

The advantages and limitations of standardized achievement tests are similar to those of standardized tests (*q.v.*). J.J.

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ACQUISITIVENESS. *Acquisitiveness* has been listed by numerous psychologists in the past as a human instinct or inherited tendency. While lower animals such as squirrels may give evidence of collecting and hoarding without example or teaching, the acquisitiveness of children and adults, however, is best understood by a consideration of the environmental influences affecting them and the interests that they develop through social contact. Anthropologists have contributed to the criticism of the "instinct theory" of human behavior, as applied to such traits as acquisitiveness, by showing how greatly acquisitive behavior varies in different societies, including complete common ownership of property, comparative disregard of property, and extreme emphasis upon individual ownership. It is no doubt true that personality development is enhanced through the acquisition of objects, as well as of knowledge and of friends, but the specific forms that acquisitive behavior will take are various and modifiable. That a person wants more of the same thing is not so important as what it is that he wants more of, how he uses the "more" that he has acquired, and to what lengths he will go to acquire this abundance.

The attempt often has been made to use children's collections as an index of their interests. This has proved to be a more complex task than the mere naming of the collection. The child's attitude toward his collection and his "gang's" attitude toward it must also be taken into account. Sometimes the collection is the manifestation of an intellectual or æsthetic interest in the field. In this case much care and study go into the activity, and discrimination as to what should be acquired and preserved is constantly in evidence. At other times a certain kind of collection is the popular fad. The children both compete and share with each other. The collections act as a medium of social interchange. As with all fads, this type of collection may lose appeal or cease suddenly. Then the collected objects are usually dis-

carded. Collections may also serve to bolster the status feeling of the individual, and are often made in those very areas where there is the greatest feeling of inferiority. This is more true of adults than of children, since possessions do not have the prestige value for children that they have for the adults in our society.

Many teachers have tried to use the "collecting tendency" of children to arouse interest and learning in some school subject. Studies show, however, that if left to himself a child may not collect anything for years. The teacher cannot depend on any "desire to collect" to guarantee that successful learning outcomes will be produced by the technique of requiring the children to bring in materials (such as postcards, news clippings, magazine articles, object samples, etc.) either for individual collections or for a class collection. The degree of learning the children get by means of this technique depends on how the teacher uses it, not on any hypothetical general acquisitive tendency.

W.F.B. and B.B.F.

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ACTIVISM. The importance of activity as part of the learning process has long been recognized. What that part is, however, and what its relative importance is, are questions around which considerable controversy has raged. The primary difficulty seems to stem from the problem of the proper relation of knowing and doing, a problem derived from the old mind-body enigma.

According to Aristotle and later the Scholastics, learning involved both physical or sensory activity and mental or rational activity. Of the two, the latter was held in higher regard because it operated as a check on the former and was the avenue through which the general or universal in experience was realized. Furthermore, rational activity was conceived to be activity in its purest form and hence the highest good. In the course of time this greater emphasis on the intellectual aspects of learning turned into an almost exclusive emphasis. Education became excessively bookish and verbal. In due course this disproportionate emphasis led to protest

and finally to reaction.

It was the educational reformers of the post-renaissance period, especially Comenius (*q.v.*), who were the first to redirect attention to sensory and muscular activity as a much neglected phase of education. Comenius' epoch-making *Orbis Pictus* made the initial inroad into verbalism by the introduction of pictures into textbooks, thus appealing to vision as well as intellection. The naturalists, primarily Rousseau (*q.v.*), reacting strongly against the current rationalism (*q.v.*), found worth in an education providing for free exercise of physical powers, the sentiments as well as the limbs and organs of the body. Pestalozzi (*q.v.*) was among the first to fashion a practical method whereby this activistic theory could be employed in the schoolroom. His principle of "object instruction" was extended by Fellenberg to manual labor and later through the *sloyd* movement to manual training in general. In the idealism of Froebel (*q.v.*) activism took the form of play. The movement was reinforced and expanded by scientific psychologies whose analysis of child nature revealed instincts and emotions as the basic drives to conduct. With pragmatists like Dewey (*q.v.*), activity is coincident to investigation and an opportunity to try out one's ideas on things to see how means can be adapted to ends. Most recently activism has been promoted by a psychoanalytic group on the theory that expression rather than repression is the educational avenue to mental health.

Underlying these historical assertions of activism in education lie two fairly distinct theories. The one theory proceeds from the premise that it is the biological or psychological character of human nature to be dynamic, growing, active. Hence the curriculum must be composed of activities so that these potentialities for action may be actualized. In this direction lie sense training, discipline of the faculties, busy work, "self-activity" of the Froebelian kindergarten, expressionism, perfecting one's abilities, and growth as its own end. The exercise or training of the activity itself is the end of the educative process. The content is relatively unimportant. The obvious though not necessary danger here is formalism.

The other theory looks on activity, not as an end, but as a means. Activities, both phys-

ical and mental, are purposefully undertaken to gain ends and to see what consequences flow therefrom. In this sense the word "activity" has come to have an almost technical meaning. Thus, a situation in which a child feels the need for making an adjustment, sizes up his problem, thinks out a solution, and actively rearranges the internal and external circumstances of his life to bring his solution about, has in some quarters come to be known as an "activity." Such learning situations also go by the titles of "unit," "project," (*qq.v.*), "problem," and even "experience." Situations vary as to how much activity will be inner and mental and how much overt and physical, but none will be exclusively either.

There are also secondary aspects of activism which will be seen to take their further significance from whichever of the preceding theories one subscribes to. Thus, interest, spontaneity, and freedom have all been identified as concomitants of learning by doing. It makes a vast difference, for instance, whether freedom is advocated as the necessary basis for the release of any or all potential activities of which one is capable or whether it is the prerequisite for experiment and inquiry. It is the difference between a freedom bordering on boisterousness or even license and a freedom definitely under the control of purpose. (See also ACTIVITY PROGRAM.)

J.S.B.

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ACTIVITY PROGRAM. The Activity Program has had many definitions. In the Thirty-third Yearbook, Part II, of the National Society for the Study of Education forty-two definitions by eminent authorities are cited, ranging from "*a device*" for teaching prescribed subject matter on the basis of children's interests and experiences to a disregard for formal subject matter and the concept of "*a curriculum worked out 'on the spot' by boys and girls under the guidance of teachers.*" To some it means *experiential learning*; to others, *unit organization of work, study or experience*; to still others, *a series of projects*. The activities implied cover a wide range of physical, manual, social, or intellectual experiences.

Perhaps the best single definition is the

ACTIVITY PROGRAM

one reported in the Survey by the New York State Department of Education of the six year experiment with the Activity Program in the elementary schools of New York City from 1935 to 1941:

"As conceived in the New York City experiment the development of an activity program was primarily an effort to shift the emphasis of teaching in the elementary school from subject matter to the child. It was an attempt to make the child an active participant rather than a passive recipient in the educational process.

"The Activity Program placed special emphasis upon the development in children of self-control, critical thinking, creative expression, and desirable social relationships. These were to be attained in part through children's participation in planning their work, through learning by actual experience, and helping to keep records and to evaluate work done. It emphasized adapting materials and methods to the needs and abilities of individual pupils; the wider use in the school program of opportunities for creative work in art, music, dramatics, and construction; and the creation of school and classroom atmosphere conducive to democratic living, and of friendly, active, cooperative relations between school, home and community."

Activities referred to in this and in other definitions are more overt in the primary school, and tend to become more identified with research around organized courses of study or large community enterprises in the secondary school.

The variety of terminology used in defining the Activity Program and in describing its essential characteristics has been confusing and has led to much unfavorable criticism. The Activity Program has been conceived by some as 'loose discipline,' 'absence of organized content,' 'child domination,' artificial and unrelated 'projects,' 'boondoggling' of orange crates and disregard for authority, absorption in the 'here and now,' and failure to transmit the 'cultural heritage of the race.'

These misconceptions have arisen from failure to understand the educational shortcomings which the Activity Program attempts to correct as well as from observation of well-intentioned but uninformed applications of the Activity Program by misguided en-

thusiasts.

1. The Activity Program represents a *series of reactions* against the 'lock step' in education, teacher domination, regimentation of discipline and instruction, stratified subject matter, meaningless verbalism, reliance on repetitive drill and memorization, and other objectionable forms of traditional practice. Some of these reactions were so violent as to lead to absurd extremes.

2. The Activity Program represents an *attempt* to integrate into a well organized pattern the best modern concepts of elementary education. Hence the varied emphases. In the evolution of elementary education many concepts have been developed which have been displaced by subsequent theories. For example, the Gestalt theory of learning has largely supplanted the more limited conceptions of transfer of training and specific responses to specific situations.

3. The Activity Program is regarded as education for citizenship in a democracy. As such it recognizes and provides for the potentialities and needs of the individual as well as for his relations and obligations to society. It therefore sets up a pattern which rejects autocratic control in favor of gradually increasing *self-control for individuals* and *self-government for groups*. In the light of its major objective, training for democracy is susceptible of as many variations as the concept of democracy itself.

4. The Activity Program is a manifestation of the influence of the Scientific Movement in education. Emphasis is placed on experiential learning, on experimentation, and on child-study rather than on a pattern of passive, receptive learning through formal recitation.

All learning involves activity of some kind. Even passive listening or re-citing requires some activity. The following scale patterned after that of Leo J. Brueckner (33rd Year-book, Part II, National Society for the Study of Education, Appendix I, pp. 212-214) indicates an ascending order of learning activities characteristic of various activity programs:

1. Lowest level. No systematic program of activities. Whatever activity is used is regarded as a *device* to motivate learning or as an *application* of something assumed to be already learned. Deferred values are regarded as more important than immediate values. "You will need this when you grow up."

ACTIVITY PROGRAM

2. On the next level the activities are largely unrelated and incidental. They are *extra-curricular*, like clubs, safety patrols, school papers, or pageants. Occasionally some regular school time is allowed for this type of activity. Participation in it has some recognizable values, aside from subject matter mastery.

3. At this level activities are isolated *projects* conducted during school hours or they are related intra-curricula activities like setting up a post office or a store or reproducing in miniature an Indian village or a market. The purpose is largely to *enrich* or *vitalize* the work planned by the teacher. Voluntary participation and individual initiative and choice are often present, but not especially planned for or stressed. Formal subject matter still dominates.

4. On this level the pupil is thought to learn most completely if the work of the school is organized into *units* dealing with activities as nearly as possible like those in life outside of school. Subject matter organization is still retained. The selection of units and activities is still made largely by the teacher. There is considerable correlation of subject matter. The outcomes tend to be stated in terms of pupil growth rather than mastery of subject matter 'set out in advance to be learned.' There is some opportunity for pupils to make or to discuss suggestions or to select from activities recommended by the teacher. The course of study lists carefully described activities that suggest to the teacher ways in which the agreed objectives of separate subjects may be achieved. The teacher provides a stimulating environment and guides children's activities. The class 'covers' a course of study but community affairs and pupil interests are used advantageously as 'approaches' to the units of work. There is some provision for pupil planning, participating, discussing, executing, and evaluating within limits set up by the teacher. Subject matter and skills not naturally achieved in connection with the unit of work are taught and drilled separately.

5. At this level traditional *subject matter* is *disregarded* as unlikelike and unnatural. The work of the classroom is organized about projects and activities of immediate and challenging interest to the group. The course of study is a guide, not a prescription. The time schedule is flexible. There is a school library

and classrooms have library corners with ample provision for free reading and well-organized reference and source materials, where, with guidance, pupils may readily locate information about the problems and subjects they are studying. School museums, community museums, and public libraries arrange for exchange of materials with the school for research or demonstration purposes. The function of the teacher is to guide the activities of the pupils into educational channels. The teacher devotes much of her effort to enriching her own experience and broadening her point of view and her intellectual horizons. She helps pupils to overcome their difficulties, to evaluate their performance and achievement, and to enrich their understandings and appreciations without overtly dominating their activities and purposes. Pupils learn to recognize and attack actual problems of life under the guidance of the teacher. They acquire technics for solving them and the will to solve them. Education is thought of, not only as the plan by which society endeavors to transmit the social heritage, but also as the process by which the individuals and groups learn to take part in the "continual reconstruction of experiences to higher levels."

The elements of the Activity Program are not new. Before schools were established experiential learning in social situations was almost the only way of learning. One sees in the program reminders of the influence of the Renaissance with its emphasis on the joy of living and learning as typified by Vittorino da Feltre; of the Reformation as a revolt against passivity, conformity, and authoritarianism; of the social and natural approach of the Realists with their resistance to formal instruction, book learning, and verbalism and their emphasis on participation and experiences; of the Scientific Movement with emphasis on induction, experimentation, and validation; of the democratic movement with its esteem for the individual, the rights of man, and the brotherhood of the human race. One recognizes the influence of Comenius's stress on the appeal to the senses through objective aids; of Rousseau's concern for child-study, natural development, and self-expression; of Froebel's vision of the kindergarten—"the garden of children" and of the place of play, self-activity, and growth; of Pestalozzi's realization of the

ACTIVITY PROGRAM

possibilities of object teaching, of manual training, and of industrial and agricultural art; of Herbart's insistence on motivation, correlation, and character training; of the emphasis by Dewey and Kilpatrick on adjusting learning experiences to the learner, providing conditions and challenges to stimulate growth in natural situations, analyzing the process of thinking, reconstructing experiences on higher levels, and bringing education out of the classroom into the laboratory, the library, the studio, and the world outside the school.

What is new about the activity program in its best forms is the integration of all these influences into a constructive program of education and child development in a social milieu. The program is thus a philosophy of education, a curriculum, and a methodology. As a philosophy it is concerned with the objectives and principles of education. As a curriculum it is concerned with a pattern of democratic living and the experiences and activities inside and outside the school including subject matter and skills through which these objectives can best be realized. As a methodology it is concerned with working conditions, challenges, motivations, teacher knowledge of pupils and their environment and how they learn, and the ways in which optimum pupil participation in the planned curriculum of the school in typical situations may be achieved. As a part of its concern for the needs of individual pupils it includes the practice of remedial procedures with those pupils who fail to acquire learning as a result of significant experiences.

The Activity Program tends to supplant the formal recitation and repetitive drill of the traditional curriculum. In a good activity program these are retained to a degree but the more overt and characteristic procedures are: (1) *discussion*, *conference*, pooling ideas and arriving at plans or decisions; (2) *trips*, actual or vicarious through motion pictures, stereopticon slides, or other objective aids in which the children observe and handle real objects in real situations, (3) *research*, in which children explore problems raised by themselves through interviews, inquiries, or extensive critical reading, (4) *dramatic play* or dramatization, in which children 'make believe' or enact original or studied episodes and plays and identify themselves more closely with people

and situations important to them, (5) *construction*, in which children reproduce, usually in miniature, what they are studying, (6) *pictorial or graphic representation* as another way of interpreting and organizing what they are learning, (7) *sharing experiences and findings* with each other, with other classes, with assembly groups, or with the community, (8) *culminations*, in which projects or units of study or work are brought to a significant termination in the form of an exhibit, a program, a pageant, or a demonstration, (9) *evaluation and fixation*, in which through reviews, tests, check-ups, drill, and other devices pupils fix the information or skills which they regard as important or necessary.

Many of these features are observable in the work of good teachers in any school, but the emphasis in the activity program is consistently on individual and social growth through guided challenging experiences.

The introduction of the Activity Program in a school previously run along traditional lines presents many difficulties because of the demands of long established courses of study, lack of teacher training in newer practices, unsuitable equipment, and the characteristic inertia and resistance of traditional teachers and administrators. These difficulties are accentuated when an entire school system is faced with such a drastic change from traditional subject-matter emphasis to the Activity Program. The introduction of the Activity Program into the elementary schools of New York City is of particular significance because of the light it sheds on the problems involved in such a transition and their possible solutions. Before introducing the Activity Program into all schools, New York City conducted a six-year experiment in seventy selected schools, typical of all the local communities and school organizations. The experiment included 80,000 children and 2,500 teachers, a typical school population as large and varied as the total school enrollment of many a large city.

Near the close of the experiment the State Department of Education, on invitation, made an extensive survey of the Activity Program and recommended its gradual extension into all public elementary schools. Acting on these recommendations, the Board of Superintendents approved a modified activity program for general adoption in November,

ACTIVITY PROGRAM

1941. Beginning February 1, 1942, it became the official program for all elementary schools. As a general policy greatest emphasis is being placed on the lowest grades at first. As the children advance at promotion time, they are continued on the program. It will take probably eight years to complete the transition from the former program.

The following quotation from the *Survey of the Activity Program in the New York Elementary Schools* by the State Department of Education (pp. 170-172) indicates the demonstrated values of the Activity Program:

"In reviewing its findings, the Survey would emphasize that the chief contributions of the activity program as conceived and developed in the New York City Curriculum Experiment have been to improve pupils' attitudes, their ability to think and their social behavior. Nor have these gains been accompanied, as some feared, by significant loss in mastery of fundamental knowledge and skills. While the balance in favor of the activity program is small, there is a very real possibility of increasing that margin of difference through improving the theory and practice of the activity program. When considered in terms of a million children this gain is a matter of great moment to the people of the city and the State."

The following recommendations were made in the report of the Survey:

"Continue the emphasis on the development of the personal qualities of the individual pupil such as the power of self-discipline, self-confidence or poise, ability to work with others, lack of subservience and willingness to assume responsibility.

"Continue the emphasis on development of civic attitudes and understanding of socio-economic questions within the range of the child's experience and understanding.

"Continue the excellent work already evinced in cultivating critical thinking and children's resourcefulness in working on their own initiative.

"Give more attention to the theory and practice of discovering and cultivating the creative talents of children as expressed in writing, in the fine and practical arts, and in other forms of æsthetic expression.

"Continue the process of reorganizing the school's procedure so as to give the child continuous experience in the processes of democratic living.

"Discard the idea that the activity program is something that may be allotted to a period or session of the school day. Cultivate the idea that it is a change of emphasis in the theory and practice of teaching that modifies the school's total relation to the child and therefore modifies the organization of the child's entire school day.

"Give more attention to cultivating the mutual relationships of parents and teachers in guiding the child's educational growth and to developing the relationships of the school with the home and community."

One of the most difficult problems involved in this introduction of the Activity Program is the retraining and reorientation of thousands of teachers who had become skilled interpreters of the traditional curricula and methods of teaching with which they were familiar. It is significant that so much of this retraining is being undertaken in democratically organized teacher workshops (*q.v.*) which are in themselves the embodiment of the cooperative planning, creative expression, and self-evaluation that are the core of any successful Activity Program.

The reeducation of teachers that is necessitated by the influence of the Activity Program is complicated by the fact that the Activity Program is more than a method of teaching. The Activity Program is most meaningful when it is seen as a reflection of an educational philosophy that influences all phases of educational procedures, from the type of classroom discipline to the nature of the curriculum. The hasty adoption of the Activity Program by schools without adequate provision for in-service education of teachers has led many teachers to imitate the superficial characteristics of the Activity Program before they understood the purpose of the changes they introduced. Such teachers have tried to introduce activities borrowed from other teachers only to find that these activities had little meaning for their pupils. They have rearranged the furniture in their rooms, organized classes into committees, kept detailed "log books" (see *DIARY, CLASS*), and required that all pupils engage in research activities, only to find that they could not see the educational gains which other teachers reported. Many of the objections that have been raised to the waste of time and the purposelessness of the Activity Program are not really criticisms of the Activity Program when used with insight; they are criticisms of procedures which bear a superficial resemblance to the Activity Program but which are essentially far removed from the philosophy and the practices of a well-planned and expertly administered Activity Program.

It is significant that much of the preceding discussion related to the elementary school, for the Activity Program has had much more influence on elementary education than on secondary education. Such programs of reorganization as the *broad-fields approach*, and the many variants of the *core curriculum*,

and the concept of the *community school* (*q.v.*) endeavor to do for the secondary school what the Activity Program is doing for the elementary school. They, too, represent a reaction against traditional subject-matter dominated organizations and an affirmation of the principles of experiential learning and the creative development of well-adjusted individuality within a framework of cooperative effort and communal well-being. Such experiments as the Eight Year Study (*q.v.*) have done much to show the value of newer instructional practices in secondary schools and have stimulated the revision of curricula and methods in these schools.

One of the major difficulties attending the Activity Program in elementary schools is that the graduates of these schools enter secondary schools which are organized on a highly departmentalized basis. This difficulty reflects not a basic lack of harmony between progressive elementary education and progressive secondary education but an unfortunate lack of articulation between an elementary school program that is organized in terms of children's needs and interests and a secondary school curriculum planned in terms of fixed subject matter boundaries. Problems of articulation between elementary and secondary schools should be few when both are activated by a common philosophy and common basic principles. (See CURRICULUM, ELEMENTARY EDUCATION, PROGRESSIVE EDUCATION, SECONDARY EDUCATION.) J.J.L.

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ADAPTABILITY. *Adaptability* may be defined as the ability of an individual to adjust his behavior to the general environ-

ment or a particular social situation. In contrast, *adaptation* may mean the ability to maintain ones self in a certain environment and may thus include the modification or adjustment of the environment to the needs of the organism. It is important in education to be clear concerning the degree to which a young person is learning to be an active factor in his physical and social environment so that he constructively promotes the development of himself and others, rather than merely learns to accept conditions as they are. W.F.B.

ADAPTATIONS—See MORRISON PLAN.

ADJUSTMENT—See MENTAL HYGIENE.

ADMINISTRATION, SCHOOL. **Functions of School Administration.** Public education in the United States has attained the proportions of a big business enterprise. The schools now enroll nearly thirty million children, taught by nearly one million teachers in more than a quarter-million schools. It is the function of school administration to plan for and to set up the channels through which this educational enterprise may be carried on. The administration must provide for school buildings and equipment, the employment and supervision of teachers, the purchase of instructional materials and supplies, the transportation of pupils, and many other phases of business management.

Teaching pupils is the primary function of the school to which administration is an aid. Administration is never an end in itself, but only a means to an end. To keep schools in operation there are hundreds of details which must be planned and executed in order that the instructional process may be carried on by the teachers. All such planning and executing of the plans either by administrative officers or by teachers, is the function of school administration.

Theories of Administration. Two principal theories of school administration may be characterized as the executive and the democratic. Under the executive theory of school administration it is considered best to have one or more persons directly responsible for the formulation and the execution of the policies of the school. This theory developed parallel with the theory of business administration in which efficiency in production and management were the chief objec-

tives. Under conditions of rapid expansion in public education during the latter part of the nineteenth and early part of the twentieth centuries, this theory was accepted and adopted by the schools.

The second theory, that of democratic administration, has grown out of the recognition that policy making and policy executing cannot be separated, and that all those who have a share in the work of the school should participate in planning. Democratic administration recognizes both the assistance to the administration that teachers can give and the opportunities it affords for in-service growth of teachers. It recognizes the principle of delegated authority and the principle of shared responsibility.

Evaluation of Administration. Any theory of administration or form of administrative organization must be evaluated, in the final analysis, in terms of its effect upon the educational processes. When education is conceived as growth of individual children and young people toward socially and personally desirable goals, administration must foster such development. That administration which improves the learning condition, provides for effective adaptation of the program to meet the needs of individual children, and stimulates pupil interest and fosters the development of attitudes and ideals is fulfilling its function. School administration, thus, becomes a means for reaching the objectives set up by the schools and by society, and must be evaluated in terms of its contributions to that objective.

Administrative Machinery. The administrative machinery of the state school system may be divided into two groups according to the agencies to which the authority to carry on educational functions have been delegated. These are the agencies of state-wide jurisdiction, the state board of education and state department of education and those of local jurisdiction, local boards of education and administrative staffs. The size and organization of state departments differs greatly in the various states. The number of persons employed ranges from fewer than ten to more than six hundred. In most states there is a third agency that is intermediary between the state and the district, such as the county, township or town. Broadly considered, however, these intermediate agencies may be classed as local.

The state administrative machinery is a state board of education and a chief state school officer who is in charge of the state department of education. State departments carry on functions affecting all the schools, such as supervision of attendance and census, distribution of state aid, enforcement of the state schools laws, certification of teachers, curriculum construction research, and general supervision of all the schools.

Under the local machinery for school administration is the board of education and one or more officers directly responsible to the board and the administrative offices. Here again, the size and the complexity of the administrative office vary in accordance with the size and complexity of the school system. The local unit carries on such functions as business administration, public relations, attendance supervision, employment and supervision of personnel.

Administrative Organization. The administrative organization of a local school system known as the *line and staff* has become the predominating one. This consists of a direct line of authority from the board of education to the superintendent to the principals to teachers and to pupils. In reverse order, the line of responsibility extends from pupils to teachers to principals to superintendent and to the board of education. Staff officers in this organization are persons who perform functions not directly in the line of authority such as the business management, supervision, management of transportation, etc. Persons who perform such functions are under the direct authority of the superintendent and may be considered as extensions of his office with advisory relationship to principals and teachers.

The *unit type* of organization is that form in which there is one executive officer, the superintendent of schools. This officer is directly responsible to the board of education and under his direct control and supervision are all the other personnel of the school. School administrators generally regard the unit type as the most desirable form of administrative organization.

When there are two persons at the head of the system, usually a superintendent and business manager, both directly responsible to the board of education, the organization is spoken of as the *dual type*. The theory supporting this form of organization is that

both the educational and the business management functions are of sufficient importance to warrant executive heads who are directly responsible to the board of education. The weakness of the system is that differences of opinion concerning theories or functions of the two officers may lead to conflicts which are detrimental to the efficiency of the school and the achievement of its objectives.

When there are more than two persons at the head of functions or divisions of the school system, each responsible directly to the board of education, the system is characterized as the *multiple type* of administrative organization. The weakness of this organization is similar to that of the dual type, except that the defects may be increased.

Teacher Participation in School Administration. Teacher participation in the administration of the school is not an innovation in education. Teachers always have been and will continue to be important participants in the administration of the schools. Schools could scarcely operate without the teachers' contributions to their administration. All phases of management in the classroom, in the halls, on the playground, and in the community, are directly related to and often involve administrative problems that are cared for in large part by the teachers. If one reviews the activities engaged in by a typical teacher in a city school system, he sees that the teacher often directs extra-curricular activities, manages libraries, keeps various records, selects and accounts for textbooks and other school equipment, deals with pupils, confers with parents, participates in public relations programs, and often serves on committees which may formulate salary schedules, prepare and review budgets, revise courses of study, plan curriculums, and determine other policies of the school.

Those who emphasize teacher participation in school administration recognize the important relation that teachers already play in the management of the school and would seek to set up channels through which such participants may receive recognition in school administration.

One of the most frequently recognized forms of organization is the teachers council (*q.v.*) to which representatives are elected either by divisions of the school system or teaching interests. Such participation of teachers enables the administration to make

fuller use of the resources of the staff and provides a new incentive for in-service growth of teachers.

Pupil Participation in School Administration. In some school systems, democracy in administration is extended to include the pupils. In such an organization pupils participate with teachers and administrators to formulate and execute school policies. While it should be recognized that pupils may not participate to the same extent nor always in the same areas as the teachers or administrators, the plan seeks to utilize and develop the contributions of pupil leaders in the administration of the school. Fundamentally, it serves to foster in the student body a sense of belonging and of participation in the work of the school.

Pupil participation is frequently secured through the organization of a student council to which pupils are elected either from classes or homerooms. The elected representatives of the student body speak not only for themselves, but for the entire school. Their contributions are often helpful in program planning and may benefit the pupil representatives.

Centralized Administration. The administration of the schools of a state or country may be organized on a centralized or on a decentralized plan. In the United States, education is considered as a state function and within each state there is both a centralized and a decentralized plan of organization. Centralized administration refers to the state administrative organization that is responsible for certain functions that are performed on a state-wide basis, such as the certification of teachers, the making of certain uniform reports, and the keeping of uniform records of attendance and finance. Decentralized administration refers to the separate administrative organization in the various local units which carry on the functions of employment of personnel, provision of teaching materials, erection and maintenance of buildings, etc. The tendency to place certain educational functions under the state organization rather than under the local organization is definitely one of centralization. In all states, with the possible exception of Delaware, the administration is more highly decentralized than centralized. Quite the opposite is true in certain foreign countries in which a centralized administration carries on all or nearly all the functions of state and local

school administration. The proponents of centralization point to the greater efficiency and unity that is possible under this plan, whereas those who favor the decentralized plan hold that it keeps the schools close to the people, makes them responsive to local needs, and stimulates local interest in education.

Selection and Education of Administrators. The chief administrator of a school is selected and appointed by the board of education. In making the selection, the board should take into consideration those qualities which an administrator should possess. The board should consult with various agencies, such as college and university placement officers, state departments of education, and other successful administrators. Perhaps the most important single function of a board of education is to select the right person to administer the schools.

The administrators should possess outstanding qualities of leadership. The American Association of School Administrators has outlined the following qualifications.

1. Ability to stimulate and encourage growth among members of the teaching staff.
2. Ability to organize members of the teaching staff so there is freedom for and encouragement of creative contributions to instructional improvement.
3. Ability to keep employees working as individuals and at the same time as a group with common objectives and a common goal.
4. Ability to direct the implementation of those services and policies which are recognized as sound and practicable.

In addition, he should have a pleasing personality, be able to meet people well, and take a genuine interest in the life and work of his community. The school administrator should have a broad cultural education and sound professional training. The minimum qualifications usually specified are the A.B. degree. In most schools, however, especially in the larger ones, the superintendent should have three years of graduate work terminating in the degree Ph.D. or Ed.D. From the standpoint of both his work and his compensation, the superintendent should maintain as high professional standards as the physician, the lawyer, or other professional worker.

Elementary and Secondary School Supervision. Elementary and secondary school supervision is usually distinguished

from administration to encompass those functions of education which are directly related to the improvement of classroom instruction. Supervision is a very important area of the superintendent's work and although he may be assisted by a staff of special supervisors who do most of the supervision, he should be thoroughly trained in methods and techniques of teaching.

In the elementary school, supervision is usually carried on by special supervisors in charge of a division, such as primary, intermediate, or upper elementary grades. Another plan is to have special supervisors work in their respective fields of specialization, such as music, art, etc. On the secondary level, supervision is usually the responsibility of the principals and department heads. The organization and development of supervisory programs in both elementary and secondary schools is usually the direct responsibility of the superintendent or one of his assistants.

Many educators object to the way in which principals and superintendents emphasize their administrative rather than their supervisory functions. These critics question the wisdom of having the principal concern himself more with the smooth operation of the school organization than with the improvement of the pupil's educational experiences. This objection does not belittle the importance or the complexity of the administrative problems associated with running even a small school, but it does suggest that many principals and superintendents do not take full advantage of the opportunities for professional leadership of their teachers which are afforded by their positions. There is, however, no basic conflict between administration and supervision and the principal need not be an inefficient administrator in order to be a stimulating supervisor. (See BOARD OF EDUCATION; PRINCIPAL; SUPERINTENDENT; SUPERVISION OF INSTRUCTION.)

W.C.R.

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ADOLESCENCE. Adolescence is that indeterminate period of a person's life from the time when he first begins to show signs of maturity to the time when adulthood is achieved. Though all of childhood is a period of growth and all of life an adjustment to change and changing demands, changes occurring during the period of adolescence have a heightened quality. This quality derives from the fact that by the end of the adolescent period those characteristics must be obtained which at last change one from the dependent child getting his support and security from the adults who have authority over him to the mature man or woman who must properly fulfill the functions both of his sex and of his adulthood. Full adulthood implies not only readiness on the part of a person to take responsibility for himself but also, in his (or her) turn, to give support and security to the young. Adolescence need not be the period of "storm and stress" by which some writers characterize it. Storm and stress will occur if the adolescent is plunged headlong into adulthood, or kept from attaining the long-awaited goal of adulthood, or if the mores of adulthood which he is asked to adopt are conflicting.

Education for the change of status from immaturity to maturity should begin in early childhood. The strings which hold the child to the authority and discipline should be loosened gradually and broken one by one as the ability for self-responsibility in the specific area has been attained. Education for self-responsibility and the giving of responsibility must go hand in hand if either is to be successful. Both must be long-term processes just as physical growth is a long-term process. Again, just as the rate of physical growth is different for different parts of the body—some organs having attained their maturity when others are just beginning to develop—so do mental and emotional skills and attitudes also grow at different rates. This means that the adolescent is adolescent in only some respects, while he is a child in others, and an adult in the rest.

This naturally uneven pattern of growth

causes many of the problems of the adolescent. In the first place, the adolescent himself veers from the desire to be treated as an adult to the desire to be protected like a child. Likewise, his parents and teachers see-saw in their treatment of him, expecting mature self-responsibility at one time and restricting him like a child at other times. Unfortunately, the occasion when the adolescent desires freedom and responsibility is not necessarily the occasion when the adult thinks he is ready for it, and on the other hand, he is often given responsibility on those very occasions when he feels least sure of himself and least eager to take it.

If the growth pattern were uneven but similar for all children, then parents and teachers could learn what it is and guide their own behavior towards youth accordingly. However, the growth pattern is, to a large extent, different for different children. Full height is reached by different children at different ages. Sex maturity has a very wide age range though it is generally true that both *puberty* (the first stage of adolescence) and maturity are reached earlier by girls than by boys, the age range of the onset of puberty being about 10 to 14 years for girls, and 12 to 16 for boys. For any one child, the growth curve of intellectual ability has no predictable relationship to his growth in height, nor to his sexual maturity. Adults must therefore watch the individual child and adjust their demands and restrictions accordingly, if they wish to help emotional growth to proceed and to avoid causing maladjustments.

Individual differences in the pattern of growth may also bring about acute maladjustment between the adolescent child and his friends. A physically mature girl of thirteen no longer has the interests of her former friend who is also thirteen but who is still in the earliest stages of puberty, and yet the fifteen-year-old girls whom she resembles physically find her too immature mentally, too childish in other ways. Adolescence is a time when many new groupings of friends are formed. During junior and senior high school years, students are constantly striving for status in both a group of their own sex and in a heterosexual group.

The ease with which satisfactory heterosexual status is attained is a function not only of sex-maturity and sex-attractiveness but of every personal quality. Unpopularity with

ADOLESCENCE

the opposite sex can be caused by a temperament which was set by the training the child received in the first six or ten years of his life. Unsatisfactory heterosexual adjustment may also arise through the adolescent's insecure feelings towards his own maturing body. Since adolescence is a time of rapid growth in many phases visible to the child—height, weight, genitalia, secondary sex characteristics—it is natural that he should be interested in and concerned about the rate of growth in these areas and that he should be continually comparing himself with others. A certain amount of anxiety because of slowness of growth or pride because of rapid growth compared with that of friends is natural. Unhealthy attitudes toward the body are sometimes developed at this period. Oftentimes, however, they have their start at a much earlier age. Attitude toward one's own body always enters into the concept of one's self which begins to develop in infancy. The attitude of adults towards their own bodies and towards the baby's body, their evaluation as to what is "nice and what is not nice" to do or to say will affect the young, child's feelings towards the body and later will have an effect on his attitudes towards sex and sex behavior. The groundwork for a good or poor heterosexual adjustment is thus laid long before adolescence is reached.

Strain during adolescence may also be brought about by the youth's expectancy that very soon sharp demands will be made upon him which he feels he is not going to be able to meet. The knowledge that it will soon be necessary for him to become self-supporting makes the adolescent lose patience with a school curriculum which does not seem in any way to be training him to make a living. During a depression, knowledge that jobs are not to be had may keep the adolescent in school longer than the permissive school leaving age, even though there may be little enthusiasm for study.

Maladjustment during adolescence may also be brought about through the fact that social maturity, the gaining of adult status in society, is delayed long past organic maturation. In our society, taboos with regard to pre-marital relationships are strong enough to arouse guilt feelings when they have been transgressed, yet weak enough to make every adolescent feel concerned with determining how much petting is "all right" and where

the line must be drawn. The delay in becoming "your own boss" is equally frustrating to many an adolescent who is regarded as socially immature because of the arrangements of society and not primarily because of limitations in himself. Though adults can retard emotional maturity and social adulthood for a very long time; they cannot delay physical adulthood.

The extension of secondary school education to include more and more children therefore accentuates problems which were not so acute formerly. When the high school enrolled only the children of a fairly homogeneous socio-economic group many of whom looked forward to going to college and to entering a profession, there was often enough personal drive and family pressure to make going to high school "the thing to do." Today, however, the high schools enroll adolescents who have no such strong personal drive. To such students, attending high school seems to be more an unwanted prolongation of their elementary school childhood than a preparation for and an introduction to their participation in an adult world. They find, moreover, that the high school curriculum does not concern itself with the questions that trouble them. The girl who wonders how she can convince her parents that she is no longer a little child, the boy who is impatient to earn his own money rather than have to depend on an inadequate allowance, the student who is convinced that he has the solution for the world's social and economic problems—all these find little that is interesting or challenging in the love life of Sir Lancelot or the many ways in which one can prove that two triangles are congruent. The high school curriculum is beginning to reflect the needs of adolescents and the changes that have already been introduced support the hope that the secondary school may some day be an appropriate place for all adolescents. (See CURRICULUM; SECONDARY EDUCATION.)

The adjustment of secondary school procedures to adolescent needs is complicated by the fact that sex differences in the rate of maturation are greatest during these years. The teacher of a second year class in high school may have a group of fifteen-year-old boys and girls, but he really has a group of fifteen-year-old boys and fifteen-year-old young women. The novel

which the girls find so interesting may therefore be so much more adult in its appeal that the boys think it silly. Moreover, the bright girl whose mental and social interests are ahead of her years, experiences difficulty in finding any boys in her class, or even in her school, who share her interests.

Though educators are eager to extend the period of compulsory education through the adolescent years, they are becoming increasingly aware of the many problems that must be solved if the extension of secondary education is to be successful. B.B.F.

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ADULT EDUCATION. The term adult education means all things to all men. To the housewife in Pittsburgh it may mean that her mother who was born in Poland can learn English in a free night school. To a chemistry professor in a midwestern university it may recall his twenty students in correspondence courses. To a superintendent in a southern state, it may be identified with an evening school staffed by teachers of home economics, agriculture, and shop; while to another administrator it may signify his efforts with the parent-teacher association to get cinders for the play field. To professional adult educators, adult education may be returning to a creative endeavor, directing social change, attaining security, or seeing the view.

In these varied definitions of adult education, we have five common elements. (1) The definition varies with the personal experience of the individual making the definition, and contains few of those common denominators found in descriptions of other fields like elementary education. (2) Adult education is a process operating on someone else, rarely on the person who is defining it. (3) Adult edu-

cation is ordinarily assumed to be undertaken only when the individual himself is conscious of a basic need. (4) Despite the admonitions of adult educators to one another to achieve a magically different methodology, only those activities are recognized as adult education which are packaged in orthodox forms such as lectures, discussions, forums; reading (on both sides of the question); radio or dramatic presentations which are "good"; motion pictures which are scientifically or historically acceptable in their content. (5) Adult education is more often defined in terms of values than it is in terms of psychological processes. There is no "bad" adult education. To the person defining it, the term always implies some "good" activity.

These boundaries exclude from the field of adult education such behavior-changing as formation of public policy through debates in pressure groups and legislative halls, development of consumer habits through advertising, and formation of attitudes through motion pictures and planned campaigns in the press. The adult educator who wishes to study his field functionally in terms of all the forces which affect the behavior of men and women is in a dilemma: he must either relegate to other fields like propaganda some of the most important of these manifestations or he must take for his province practically the whole of the conscious world. Despite the magnitude of the latter task, it yields greater returns in a study of how men and women are to control their own destinies through education.

Adult education thus defined might be a process of behavior-changing. The latter term, however, needs interpretation; for it includes changes in the individual which preface changes in behavior, as well as overt actions themselves. And it may result from purposes of the individual being educated or from purposes of others. Thus the emotional adaptations in the person who listens to the symphony every Friday or the one who sways to a jitterbug band every night are evidences of an education in tastes. Likewise, continuous, self-initiated discussion in a club or continuous exhortations by a rabble-rouser, either of which may result in an individual's writing his Congressman, both signify that the educational process is going on. The end results for the individual or for society may be either

good or bad: neither should be excluded from the all-inclusive term, *adult education*. This does not relieve the educator or the layman of the necessity for defining "good" education—in fact it becomes his responsibility when he fully understands the extent of his field.

Scope of Adult Education. *Job Efficiency and Economic Security.* In this wealthiest of all countries where riches are to be had in return for skill and daring in exploiting them, the most powerful dynamics in adult education have been two interchanging motives: job efficiency and economic security. Both employer and employed groups as well as independent agents have been instrumental in promoting vocational (including professional and agricultural) training under public and private auspices.

A series of devastating depressions has made clear to citizens of the United States, however, that illimitable resources and skill in their exploitation are not enough to assure security to all economic groups. Industrial workers have answered the challenge to unemployment by education for organization through unions and a special set-up of workers schools. Independent farmers, farm laborers, and professional people have in turn established their own organizations for a solution of economic ills. Confronted with what they have considered inroads on their rights, employing groups have resorted to many schemes for educating both the public and their own employees to the "business point of view."

Personal Growth

The overwhelming weight of the job efficiency purpose is somewhat misleading, for often the individual's search for job adjustment is part of a larger search for personal happiness. In response to this basic need, men and women have set up agencies to correct educational deficiencies (particularly in reading and writing), to provide recreation through the arts and games, to give spiritual or religious satisfaction. In response to other motives, commercial agencies have capitalized on the recreational aspect of this basic need and have so much set the public fashion in leisure time activities that non-profit making agencies often must give lip-service to these new tastes or be forced to close their doors.

Home and Family Life

As in most human societies, the family

in the United States is a basic social pattern and has been the motive power for much adult education by the home itself, and by other agencies operating in cooperation with the home. The terms "marriage clinic," "parent education," (*q.v.*) "home economics education," (*q.v.*) and "family life education" (*q.v.*) suggest the scope and variety of interpretation in this field.

Education to Develop Social and Political Controls

There has been a growing realization in the United States that the welfare of the individual is dependent on the welfare of the group; and that social controls are a concomitant of personal well-being. How profound a change this belief induces in American culture can be appreciated only if one understands the individualistic nature of our pioneering past. The resulting education in social and political controls has involved such fields as adjustment of foreign born to the American culture (Americanization); creation of tastes in and control of consumer goods; provision of consumer services (medical care, schools, recreation, social security measures); control and improvement of government service to meet the expanding concept of governmental functions; development of a defense against force both within and without the country (police and military education); and development of international controls. Education in these areas has been cross-fertilized by all the other areas, particularly that of job efficiency. (See AMERICANIZATION; CONSUMER EDUCATION; MILITARY EDUCATION.)

Agencies and Media. By their own admission, adult education agencies divide themselves into action and non-action groups. Some of the former show proper pride in their role as "education for action" groups; while others modestly dub themselves propaganda agencies and are persuaded of their educational nature only through being shown the scope of adult education. Most of the business, labor, agricultural, and civic organizations are in this first classification. Opposed to these aggressive elements are the non-action or reflective agencies including most school groups (workers schools are generally an exception to this rule); and other institutions like the library. Most of these agencies will vigorously maintain that action is the prerogative of the individual learner and not

the business of the institution. This cleavage between types of agencies ordinarily appears only when a controversial public question is under discussion.

Other classifications frequently employed are *formal* and *informal* (a division based on methodology); *profit-making* and *non-profit-making*; *public* and *private*. Some writers divide the field as well as the agencies into *remedial* education designed to correct deficiencies in youth education, and *adult education proper* which concerns adult needs and abilities only. Still others draw a poorly conceived distinction between *workers' education* (*q.v.*) and *adult education*, refusing to see the former as a part of the latter.

Whatever the classification, agencies operating in the field include public and private schools and Federal agencies; universities and colleges, including extension divisions and post-collegiate set-ups; clubs, societies, and associations; museums and libraries; religious, social welfare, and other types of institutions; councils and other coordinating bodies; forums, political parties, and other miscellaneous groups.

The media used appeal to all the senses, and include the spoken word in radio and from the lecture platform, as well as printed matter and the motion picture.

The Central Problem of Adult Education. Quite unconscious of any unity of purpose, job efficiency education has bridged the gap between the buying-and-selling age of the 18th century and the power-age of the present era. Despite a certain clinging to old ways among farmers, tradesmen, and small business men, most workers have made the adjustment to the industrial times; while corporations have burst their shackles entirely and are now operating on a world scale. Despite the fact that media of communication are world-wide, much of education for economic, political, and social controls still suffers from outmoded themes. Some of it has been devoted to patching the most obvious rips in the social fabric; and no effective means has been found of meeting the challenge of an international economy with education for international understanding and control.

The disease which has been the root of the difficulty among the non-profit-making agencies particularly has been a specious belief that diversity of control and variation in pur-

pose are the essence of free educational institutions. The central problem of adult education in the United States therefore becomes that of keeping pace with the aspirations of men and women. To do this, adult education agencies must clarify and unify their purposes so that they may cooperate with agencies in other lands in creating social and political controls which will parallel those economic ones already established. G.A.W.

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ADVANCEMENT—See FINANCE, SCHOOL.

ADVISER—See EXTRACURRICULAR ACTIVITIES; GUIDANCE.

AERONAUTICAL EDUCATION. The term "aeronautics" has reference to the art and science of flying and navigating aircraft. The latter may be divided into two categories: (1) the heavier than air machines such as airplanes and autogyros; and (2) structures or devices lighter than air such as kites, gliders, balloons, and parachutes. The aeronautical industries may also be grouped on the basis of those that manufacture aircraft, engines, and accessories such as propellers, tires and instruments; and those that use the aircraft.

Aeronautical education is conducted extensively in the United States in vocational schools under public as well as private auspices, in public and private technical institutes, and in colleges and universities. The public schools of secondary grade have placed the major emphasis upon training for ground-work; such as training for (1) airplane mechanics and (2) aircraft engine mechanics. Recognizing the great value in progress in air transportation and in training aviation mechanics, the Vocational Division of the United State Office of Education (*q.v.*) (then the Trade and Industrial Division of the Federal

Board for Vocational Education) early directed its attention to this area of vocational training. Bulletin No. 142, *Vocational Training for Aviation Mechanics*, revised in 1932 by Robert W. Hambrook of the U. S. Office of Education, is a carefully prepared bulletin of 285 pages giving much useful information on the subject. It was a pioneer production.

Many persons 16 years of age and over are receiving apprenticeship training under both public and private auspices for many kinds of skilled occupations or trades—such as aircraft sheet metal work and aircraft welding—connected with aircraft production. As an example of private initiative, attention is called to the Ford Aircraft School at the River Rouge plant where 3,000 apprentices are getting valuable training for jobs on Pratt and Whitney airplane engines. In another part of the same plant 1,800 sailors are getting intensive mechanical training. Both of these training programs are in addition to the extensive enrollment in the long established Ford Apprentice School which formerly prepared boys for automotive trades. Among the public schools giving valuable training for aircraft production, maintenance and repair, the Burgard Vocational High School of Buffalo, New York, deserves special mention.

Aeronautical training at the technical institute and college level is given through a variety of courses such as: (1) aerodynamics, the study of disturbances of the air caused by the passages of aircraft; and (2) aerial navigation, the art and science of determining the position of aircraft (as for example, out at sea), and of setting its course in the direction desired. Other courses include aircraft structures; aircraft design; airplane engine design; radio operation; and instrument design, maintenance, and repair.

Considerable attention is given in especially equipped centers to research in aeronautics.

(See AVIATION AND THE CURRICULUM; VOCATIONAL EDUCATION.)

F.T.S.

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AGE EQUIVALENTS—See **NORMS**.

AGE-GRADE PROGRESS—See **PROMOTION**.

AGE NORMS—See **NORMS**.

AGE SCALE. A scale divided into a series of subtests placed at definite year levels is called an age scale. Tests are ordinarily placed at a given age level if the average child of that chronological age can pass the test. There are usually a uniform number of subtests, each contributing the same number of "months" to the final score, at each age level. The highest age level at which an individual passes all tests is known as his *basal age*. The Stanford Revision of the Binet-Simon tests is an age scale.

A *point scale* is one in which presentation of problems and method of scoring are such that credit for passing a test or part of a test is given in terms of score units or point scores, rather than in terms of months. This arrangement generally allows for the assignment of partial credit to a response, as distinguished from the "all-or-none" method of scoring characteristic of age scales. Also the norms of a point scale may be revised more easily than those of an age scale, nor is it necessary to develop a complete age standardization for every test appearing on a point scale. In general, the point scale is more flexible in organization than the age scale.

J.J.

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AGRICULTURAL EDUCATION. Agricultural education as we know it today is comparatively new, much of its basic data having been obtained during the past century. The idea that agricultural practices might be improved is old and its conception difficult to establish. Josephus, in his writings, mentioned tillage practices as affecting yields; and Cato, Varro, and others wrote on improved husbandry.

The need for agricultural improvement in our country was beginning to be discussed in colonial days. Following the Revolutionary War emphasis was laid on the necessity for improved agricultural practices. Washington in his writings shows a clear understanding of the cropping and soil management problems of his day. Even then there was evidence of soil depletion, a need for improved

varieties of field crops, vegetables, and fruits, and for better strains of livestock. Out of these needs began the improvement of agriculture and the founding of agricultural education. Many wealthy landowners imported improved strains of cattle from England, sheep from Spain, and many varieties of crops from the old world.

American agriculture, developing in the pattern already established in Europe, reveals throughout its history an interest in better farming. Journals and societies devoted to agricultural improvement are numerous. Of the former, the *American Farmer*, Baltimore; the *Plow Boy*, Albany (1819); the *New England Farmer*, Boston (1822); and the *Southern Agriculturist*, Charleston (1828), are the earliest. The first agricultural societies were established in New York (1791), in Massachusetts (1792), in Charleston, South Carolina (1874), and in Philadelphia (1875). These societies held plowing matches, gave premiums for outstanding farm products, and in one instance operated a small experimental farm.

Between 1800 and 1850, attempts were made in various states to establish agricultural colleges or to teach plant and animal production in colleges already in operation. In 1825 *The New England Farmer* advocated a plan for establishing the Massachusetts Agricultural College. The New York state legislature authorized the Peoples College in 1853, with agriculture an important part of the curriculum. Ohio, Connecticut, Maryland, Wisconsin, and Illinois all report attempts before 1850 to establish agricultural colleges.

Michigan in 1855 authorized the establishment of the Agricultural College of the State of Michigan. The site selected was "a large farm near Lansing" and the purpose of the college was to improve and teach the science and practice of agriculture. This is considered the first of the agricultural colleges. In the same year the Pennsylvania legislature appropriated \$10,000 as aid for the agricultural school that later became Pennsylvania State College.

Out of this agitation and the efforts of the states grew a demand for federal aid to stimulate the establishment of an agricultural college in every state in the Union. The first land grant bill, introduced in the House of Representatives by Justin S. Morrill of Ver-

mont, December 14, 1857, passed in both houses, but was vetoed by President Buchanan. Another bill, almost identical with the first, was introduced on December 16, 1861, by Mr. Morrill, passed by both houses of Congress, and signed by President Lincoln, July 2, 1862.

The land grant act provided that, upon acceptance of its provisions, each state should receive 30,000 acres of public land for each of its members of Congress, income from the land to be used to establish and maintain a college of agriculture and mechanic arts. Thus definitely began the far-reaching program of agricultural education for the entire United States. Institutions created under this act are known as Land Grant Colleges or Universities (*q.v.*).

Today every state in the Union has its college of agriculture, supported partly by federal and partly by state funds. Some states used all their federal funds to support separate institutions, commonly known as agricultural or land grant colleges. Other states decreed that their land grant colleges should be attached to a state university or to an endowed university. In thirteen states the income from the land grant was apportioned among three or more educational institutions.

The first years of existence were not easy for the newborn agricultural colleges. Educators in liberal arts colleges were frankly antagonistic, farmers were skeptical, and the professors were hampered by a lack of practical training and a scarcity of scientific teaching material. All of these handicaps resulted in very small student enrollments over a considerable period of time.

The situation is quite different now. Colleges of agriculture have faculties of well-trained scientists, each a specialist in his field. Courses have multiplied and today students may choose their own fields of agricultural education. Each college is well served by strong departments of physical, biological, and social sciences.

Student enrollments have increased rapidly during the past thirty years, and state legislatures generally have made liberal appropriations for buildings, equipment, and maintenance. Early opposition has been largely replaced by enthusiastic acceptance of the discoveries made and the new farming practices taught by the staff members.

AGRICULTURAL EDUCATION

Colleges of agriculture offer a variety of curricula ranging from short practical courses, a few weeks in length, to four-year groups of studies leading to a bachelor of science and the doctor of philosophy degrees.

In addition to the teaching faculty each state maintains a well-equipped experiment station adequately staffed by research workers. This is usually connected with the agricultural college. The stations carry on a wide range of studies on various farm problems. Through plant breeding have been produced many improved varieties of grains, fruit, and vegetables, and new plants have been imported and adapted to local conditions. Disease prevention and insect control have been accomplished in many instances. Farm animals have been studied with the purpose of improvement and adaptation. Feeding, housing, and care of animals have been subjects of many long-time, carefully planned experiments.

In short, the agricultural experiment station provides much of the new information used by college teachers, the extension workers, and the general public.

The agricultural extension service is the newest phase of agricultural education and in most states is a part of the college of agriculture. Since only a small percentage of the farmers enroll in college, Congress decided that agricultural college information should be taken to the farmer. Before Agricultural Extension was organized this was done through farmers' institutes, but now the county extension agent is the local representative and is responsible for agricultural contacts with the farmers.

Through the local farmers' organizations, led by the county extension agent, plans for the county are formulated and educational meetings held. Specialists from the Agricultural Extension Service are available for county meetings upon call from the county agent. In addition to Experiment Station bulletins on many phases of agriculture, Extension publishes others that are distributed to farm families.

Another great agency promoting agricultural education is the United States Department of Agriculture (hereinafter called the U.S.D.A.). Organized as a department in 1862, its functions were rapidly expanded. In 1889 its chief became a member of the Presi-

dent's cabinet. Today the U.S.D.A., a vast organization with large appropriations for investigation and powers for regulation of state and interstate activities, is the head of the agricultural experiment stations and the agricultural extension organizations in the states. Through its leadership, research and extension programs are coordinated and unnecessary duplication avoided.

The U.S.D.A. maintains some regional agricultural experiment stations under its direct control. It also under some conditions locates research workers at state experiment stations for work on special projects. It publishes thousands of bulletins and reports available to farmers and other interested people. In addition to its educational and research features, the U.S.D.A., by authorization from Congress, has wide regulatory powers. It supervises meat and food inspection, importation of grains, meats, and fruits, and, through quarantine, the control of disease and parasites. Its bureaus furnish information concerning soils, weather, condition of crops, and market trends.

The latest big development in agricultural education is the teaching of vocational agriculture below college grade. This program was initiated formally by Congress in 1917 with the passage of the Smith-Hughes Act providing federal aid for the work and making definite plans for federal and state co-operation. Later federal acts have provided additional funds and regulations governing their uses. As is true with other federal co-operation, some of the federal funds must be matched by the state.

The teaching of vocational agriculture is in essence a high school program, beginning generally in the first high school year. The boys are organized into subject matter classes, such as animal husbandry, crops and soils, or farm management. Textbooks and bulletins are used for teaching and each member of the class has a home project that he looks after while studying a particular field. Thus the study becomes vocational in nature and practical in its application. Actual farming practice with livestock, crops, and farm management, is secured through these projects. Under the direction of the teacher, students make surveys of their home farms and draw up plans for the best use of the various fields.

The teachers of vocational agriculture are

graduates of agricultural colleges with special preparation for their chosen field of work. Their program also includes the organization of evening classes attended by older out-of-school farm boys and by adult farmers. The objectives of vocational agriculture are to teach farm boys to be efficient farmers, to give added instruction to adult farmers, and to train for rural leadership.

The teaching of vocational agriculture aided by federal funds has been in effect since 1918. Before that date only a few states had undertaken programs of vocational education below college grade. Today every state accepts the provisions of the Smith-Hughes and subsequent acts. State appropriations provide funds to match the federal money. Local high school districts pay a portion of the teachers' salaries and provide classrooms, shop, and needed equipment.

Many other organizations and agencies provide programs of agricultural education, directly and indirectly. The Grange, the Farmers' Union, and the Farm Bureau, for example, enroll thousands of members and induce actual participation in efforts to increase the farmers' income and raise standards of rural living. Farm journals published in every state find their way into a majority of rural homes.

From small beginnings in colonial times, when rural life was exceedingly difficult, agricultural education has grown into a series of popular and scientific programs, which have profound influence on agriculture and on rural life.

W.W.B.

AIMS OF EDUCATION. *General.* Education is a purposeful and ethical activity. Hence it is unthinkable without aims. Most generally speaking, those who devote themselves to education have already made an ethical decision; they want the younger generation to acquire skills and knowledge and to develop standards of conduct which will enable them to understand themselves and their society and to live a decent, happy, and productive life. Whatever one thinks (in terms of mere theory) about good and evil and their origin, no normal parent or educator wants to lead the young toward a state of mind where he prefers, for example, stealing to work, cheating to honesty, ignorance to wisdom, cruelty to sympathy, and slavery to freedom.

Of course, educators, like all other men, are exposed to differences in interpreting the contents of morality in a specific time and situation. A mediæval ascetic monk and a modern teacher diverge in their ideas about physical and mental hygiene. A pacifist and a nationalist educator differ greatly in their opinions about the permissible degree of interference of the State in civil life. In addition, there exists the pressure of dictatorial groups on the educator to convey, or conceal, facts according to the wishes of the powerful; and among teachers voluntary martyrs are as rare as among other people. Consequently there has been great variation in the exact definition of the aims of education.

One's opinion about this matter will naturally depend on his general philosophical, and especially on his ethical, views. If he believes that the ultimate values of humanity are not created by man, but are of transcendental character—either revealed by God or appearing in history as creations of an eternally self-revealing Logos—then he will also believe that the aims of education, in spite of a certain degree of adaptability to changing circumstances, are fundamentally immutable. This is the basic tenet of religious schools of education, as it was with all forms of Platonism. Modern "Idealism"—to use the current but rather vague term for all those modern philosophical schools of thought which hold to the ultimately persistent and transcendental character of values—is still "Platonic." The modern Idealist believes that through education and self-perfection man not only realizes his own self, but relates that self to universal values far greater and more persistent than his own transient individuality.

If, on the other hand, one believes that values are man-created, then they, and with them the aims of education, can never possess any absolute character. Let us call this school of thought the "sociological" or "pragmatic" school. Whereas the educational aims of the religious or idealistic schools of thought are necessarily of universal character (the ancient virtues of justice, fortitude, prudence, and temperance, and the Christian virtues of faith, hope, and charity, all combined as the Seven Cardinal Virtues), the aims of the sociological schools are often more closely tied up with specific purposes of the individual and of society (education as self-realiza-

tion, education toward happiness, education toward cooperation with specific forms of social organization as, for example, education for democracy). When this trend toward the specific is combined with increasing historical comparison, it often leads to the opinion that, since society seems to be in a state of continuous change, the formulation of definite aims in education violates what some believe the only social law that can be discerned—the law of change. Then the sociological schools of thought incline to neglect the problem of aims and values as being beyond scientific grasp. They become relativistic and eclectic, or their definitions, in order to avoid the dangers of fixation, become even more abstract and general than those of religious or idealistic schools of thought. The aim of education thereupon becomes more or less identical with its process, as is evidenced in the well known modern pragmatist definition that education is growth and relative to nothing but more growth. Or the aim of education is described in such terms as “nobler ends,” “a complete life,” or “the satisfaction of well directed desires.”

Fortunately for the practical effect of education, these two ways of thinking about educational aims, the idealistic and the sociological, mingle in the reality of educational activity. In Plato the perfectly educated man was not only supposed to be nearest to the transcendental realm of ideas, but also to be the guardian of the state, with all its practical interests. In Christianity the ideal of the saint had to be complemented by that of the servant of the Church, which was not only the *communio sanctorum*, but an institution with a considerable number of temporal, and certainly not always holy, interests. In addition, priests were the teachers of the future political counselors in the offices of the princes, of the lay scholars, and of the nobility. All this brought classical Christian education often dangerously near to a utilitarian and pragmatist attitude. Also the modern philosophical idealist knows that the realization of ideas does not take place through mere contemplation, but through helping ideas to become concrete. This requires action amidst all the shortcomings and compromises of reality.

On the other hand, the sociological schools have generally used highly ethical criteria for

the definition of the aims of education. As we know, they interpret the origin of aims and values differently from the idealists, but the effect on the educand is nevertheless largely in conformity with traditional moral ideas. By their adversaries, the sociologists—because of their derivation of aims and values from human interests—have often been called relativists, sceptics, or materialists. Yet, in relation to education, they have always placed the common or social interest above individual advantage. American pragmatism, especially, has emphasized democracy, not merely as a form of political association, but as a framework in which to develop a productive experimental attitude, cooperation, and a sense for freedom and independence. The aversion of the sociologists toward metaphysics, of course, makes it philosophically difficult for them to moor their aims and values in a deeper, more persistent ground, or to find definite criteria for selecting the good and lasting in the flow and flux of things. The religious and idealist schools, on the other hand, will always meet the objection that they lead their followers into a sphere in which empirical dogmatism and intolerance have grown. They could, however, reply that there is no productive human life without some kind of conscious or unconscious faith, and that the very thing they attempt is to lay the hidden and ultimately superrational essence of human life open.

In summarizing this general consideration of the aims of education one may say that education, as an activity which is tied to practical ethical purposes, renders extreme opinions about the aims of human conduct, as they may occur in mere theory, impossible. Faced with the responsibility of guiding the young, the different ways of educational thought converge much more than abstract philosophical schools. This becomes also evident in the more recent American publications about purposes and aims of education, as, for example, the *Cardinal Principles of Secondary Education* (1918), the *Issues of Secondary Education* (1936), and *The Purposes of Education in American Democracy* (1938).

However, the conflict between the metaphysical-idealist and the sociological-pragmatic interpretation of the essence of human life and its aims has caused almost as much

hostility and confusion among educators as it has caused in other fields of thought and civilization. Future generations will have to overcome this conflict, not merely by dint of eclectic compromise, but by means of thorough philosophical analysis. Such analysis will have to deal particularly with the epistemological and psychological problems inherent in the relationship between the rational and the irrational spheres of life, with the relation between the exact sciences and the humanities, and finally with the relation between the so-called "conscious" and "unconscious" strata of the human mind. For this purpose the methods of philosophical inquiry which Kant has elaborated in his *Critique of Pure Reason* will be of fundamental importance, irrespective of the question as to whether one agrees with his results or not. In addition, the philosophy of education will have to utilize all modern research into the methodology of thought, from mathematics to biology, from medicine to historical and philosophical anthropology, and from experimental psychology to undogmatic forms of psychoanalysis.

Specific.

For the purpose of describing the specific aims of education one could choose a systematic arrangement; for example, one could describe the different trends in education according to their preference for transcendental or sociological, individualistic or political, contemplative or practical ideals. But such an arrangement would show, even more than our general considerations, that the texture of purpose in educational practice is too rich to be clearly dissected into its single threads. We choose, therefore, the historical way for a brief (and from the point of view of completeness certainly quite inadequate) treatment of the aims of education.

At the beginning of our western civilization, in Greece, we find two distinct forms of education, one in Periclean Athens, which had as its goal the *aner kalos kai agathos* (ἀνὴρ καλὸς καὶ ἀγαθός) the well built, harmonious and brave man, the other in Sparta, which had as its goal the disciplined and obedient warrior-citizen. The first is æsthetic, individualistic, and aristocratic (Athens was never a democracy in the modern sense); the second is collectivistic and totalitarian. Plato, who wrote his politico-educational utopia, the

Republic, after the defeat of Athens by Sparta which occurred in 404 B.C., tried to combine the Athenian æsthetic with the Spartan totalitarian ideal. He was probably subject also to influences from strongly socialized and centralized Egypt. The older Roman ideal of the *vir constans et fortis* (a loyal and brave man) resembled the Spartan aim of education more than the Athenian, but in the second century B.C. more and more Hellenistic influences were brought to bear on the susceptible minds of the Roman conquerors, until, during the centuries after Christ, international eclecticism took the place of a clearly discernible national ideal.

In the Christian Middle Ages the ascetic, transcendental ideal of the saint, the monk, or the hermit partly replaces the natural self-assertion of the ancient period. With spreading civilization, however, more worldly aims of education again emerge: the Christian knight who has to combine the fortitude of the trained warrior with the virtues of the Christian and with a refined moral and æsthetic taste. In the mediæval education for chivalry we have a precedent for the many later forms of caste education (the *courtier*, *le gentil-homme*, *der politische Mensch*, etc.). Too little attention has been given to the mediæval guild ideals. Since the fourteenth century there certainly existed not only secular city schools beside the old cathedral schools, but also proud conceptions about the education of a city craftsman or merchant. They demanded a mixture of elementary knowledge with mastership in the craft (system of apprenticeship). Even the mediæval universities, to which we owe the development of professional ideals, were included in the guild system; the professor of the scholastic university considered himself as much a member of a corporation with its specific laws, rights, seal, and code of honor, as any other mediæval guildsman.

The Renaissance developed the ideal of humanism which, in many branches, has moulded the aims of education up to the present. Its origin is generally connected with the "revival of ancient learning." But if the much used and misused term of humanism means anything, it must be referred historically to the growing liberation from external authority and to the growing individual self-confidence of the Renaissance type. This con-

fidence in one's own personality springs primarily from the widening horizons, the travels and explorations, the more empirical attitude, and the growing wealth and knowledge which first the upper classes of the Italian cities enjoyed and which then spread through most European countries.

Unfortunately the genuine spirit of the Renaissance became in the typical academic training of the following centuries one-sidedly identified with the learning of Greek and Latin. We say "unfortunately" not because we doubt in the least the value of ancient studies. We even consider them as an essential element in a civilization which does not want to be cut off from its own roots. But the identification of a "liberal" education with the knowledge of the ancient language has led to a whole series of difficulties in modern secondary and higher education: it separated the "liberal" from the scientific and applied studies, for it refused for too long a time to acknowledge the value of the latter for the appreciation of the deeper and finer values in individual and social life. This identification has also led to artificial, and often much too easy distinctions between the "educated" and the "uneducated"; it forced upon the people a one-sided selection of talents, mainly on the basis of linguistic abilities; and it kept many youths away from active interest in their actual environment. These disadvantages have brought about a reaction which not seldom tends to forget that there has never existed a dominating ideal in mankind which could do justice to all potential human desires at once, and which also tends to belittle the discipline of mind, the historical and international perspective, the development of style and taste, and the insistence on high standards characteristic of the humanist aim of education.

Naturally in different times and nations the humanist ideal has undergone considerable changes. It has included a wider range of subjects in order to accommodate itself to the progress of knowledge and to modern professional needs. The French aim of *culture générale*, and the German aim of *Allgemeinbildung* (universal education), as elaborated by Herbart (*q.v.*), are derivatives of the old humanist ideal. To a certain degree this is also true of the English-gentleman ideal (Locke). But the English-gentleman ideal, born out of

a mixture of the standards of chivalry and courtiership with Christian and humanist conceptions, has never been so closely tied up with primarily intellectual demands as continental academic humanism. Hence it has been able to incorporate gradually new social ideals until it has become a general criterion for decency, good manners, and a certain familiarity with cultural standards.

With the increase of popular demand for a share in political rights and the advantages of schooling, education for citizenship has become one of the foremost aims of the modern public schools. This is not essentially different in democratic and in dictatorial countries, for not even modern totalitarianism can dispense with the technical cooperation of its subjects, however one-sided, involuntary, and enforced it may be. Yet the totalitarian development displays a danger inherent in all identifications of educational aims with secular institutions, as every State necessarily is; namely, the absorption of the ethical and spiritual freedom of man by the demand of external loyalty to a limited and organizational aim. It will be one of the main tasks of modern democratic educational philosophy and practice to find ways of combining sound patriotism as well as political and economic cooperation of the citizen on the one hand with that degree of attachment to universal values which have made civilization possible.

(See OBJECTIVES).

R.U.

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AIR-MINDEDNESS—See AVIATION AND THE CURRICULUM.

ALASKA—See UNITED STATES TERRITORIES AND OUTLYING POSSESSIONS, EDUCATION IN.

ALGEBRA, TEACHING OF—See MATHEMATICS, TEACHING OF.

ALL DAY NEIGHBORHOOD SCHOOLS. The All Day Neighborhood Schools are an attempt at applying the principles of the community school to the needs of a congested city.

Following six years of experimentation by the Chelsea School Project of the Public Education Association, the Board of Education of New York City on March 10, 1942, voted to establish All Day Neighborhood Schools. Thus was recognized the success of a pioneering project in the establishment of a community school in the heart of a crowded city. The practices of the school grew out of those developed by Caroline Pratt, founder of the City and Country School, who in turn had been greatly influenced by Dewey's (*q.v.*) philosophy. Its objectives, stated in a memorandum prepared for the New York City Board of Education, were (a) to introduce an all-day program of work and play for public school children that will contribute to the maximum development of each child so that his relationships with the home, school, and community may be more harmonious, (b) to demonstrate that school work can be integrated with out-of-school activities, as well as with expressional and manipulative activities, and (c) to develop a pattern of approach for the school as a community center, cooperating with the other Board of Education, city, and local community agencies.

A director and a staff from the Public Education Association assisted the school faculty in building an experience curriculum, in making recreation an integral part of the curriculum, in lengthening the school day for a large proportion of the children to an eight-hour program, and in providing summer camp experience for many children.

Those who have observed the Chelsea School Project have been impressed with the intelligent development of activities centered around services that can be performed by children. The distribution of milk and the management of a school post office, for instance, have been expanded into comprehensive learning activities. The success of the

in-service training program was noteworthy in that a group of traditional teachers have become enthusiastic participants in the activity movement. Finally, the extension of the school day for many of the children has proved a boon to working mothers, has given teachers new insight into the problems of their children by establishing new relationships between teachers and pupils, and has kept large numbers of children off the streets and in a wholesome environment.

Experience with the Chelsea School Project brought out certain needs that must be met if programs with similar objectives are to be successful. The assumption by the teacher of greater responsibility for each pupil makes smaller classes desirable. Clerical assistance must be provided to relieve teachers for teaching functions. Social workers can be of great help in strengthening the community and home channels of communication and aid. The principal or other supervisor must be one who can organize and interpret a community school program so as to gain the active support of all teachers. Volunteers can be helpful in broadening the recreational and health programs in particular. The school plant must adjust to a new role as the center of community recreation throughout the year. And of utmost importance is the participation of *all* community agencies and groups that have a contribution to make—family, religious, civic, health, and social.

While the program of the All Day Neighborhood Schools in New York City has been and still is handicapped by the lack of certain important facilities and personnel and the failure to get the cooperation of all community agencies, its success has been sufficient to lead some educators to refer to them as the "Schools of the Future." The pattern of their development, i.e., private initiative and support, public permission, and finally public acceptance and support, is worthy of study by laymen and educators interested in promoting educational programs that serve the whole child. (See COMMUNITY and SCHOOL.) R.S.F.

ALL-YEAR SCHOOLS. In contrast to most schools, the all-year school provides an organized program of instruction for an entire calendar year, making no provision for an extended vacation period for all pupils at the same time. Usually the year is divided into

four quarters of twelve weeks each, with attendance required in any three of the quarters. While students may attend all four quarters, they may select any one quarter as a vacation period.

The all-year school, in comparison with the usual school, provides an opportunity for children to engage in worthwhile educational activities under the guidance of adults during the summer months as well as during the other months of the year. This, probably, is the outstanding advantage of the all-year school, although many other advantages are cited by its advocates.

Although it is claimed that under the all-year school plan the cost of education is decreased, the reverse is likely to be true unless pupils attend only three of the quarters and their enrollment is spread approximately equally over the four quarters, and unless teachers are paid the same yearly salaries for twelve months as they are paid for the traditional school year.

The all-year school enables pupils to shorten the period of their education through attending all four quarters of the year. The value of such acceleration for most children is, however, open to serious question.

Under the all-year school plan children are given a greater opportunity to choose when they will or will not attend school during the year. While this may be relatively unimportant, at least it offers the children and their families more freedom of choice than does the practice under the usual plan of required attendance.

In spite of the almost inevitable increase in the total cost of education under the all-year plan, the benefits to be derived from providing an organized program of education for those children who are not cared for adequately by other organized agencies and who are left to seek their own diversions during long periods of time during the summer vacation period may more than compensate for the additional expenditure necessary.

Although the idea of the all-year school is not new, there have been relatively few cities that have operated any part of their school system for all pupils on the four quarter basis. The five cities referred to most frequently in connection with the all-year school are Newark, N. J., Nashville, Tenn., Mason City, Iowa, Alliquippa, Pa., and Ambridge, Pa.

W.V.N.

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ALPHABET METHOD (READING)

—See READING, METHODS OF TEACHING.

ALTERNATIVE-RESPONSE TEST —

See OBJECTIVE TESTS AND EXAMINATIONS.

AMBIVALENCE. Coexistence in an individual of two opposite or contradictory emotions, feelings, or ideas. The existence in a child of love and hate for a parent or teacher exemplifies emotional ambivalence. There is considerable disagreement among members of various schools of psychology as to the origin of the hate aspects of ambivalence. Freud originally thought of it as innate and instinctive. Most modern authorities believe that hate develops out of the frustrations of the love impulses which any culture must of necessity show. Thus the child soon learns that the amiable father who takes his son on trips is also the stern magistrate who punishes misdeeds, and the teacher who tells such delightful stories is also the one who reprimands children for being restless. G.M.A.

AMENTIA—See MENTAL DEFICIENCY.

AMERICAN AND CANADIAN COMMITTEE ON MODERN LANGUAGES—See MODERN FOREIGN LANGUAGE "STUDY."

AMERICAN COUNCIL OF LEARNED SOCIETIES—See COUNCILS OF LEARNED AND PROFESSIONAL SOCIETIES.

AMERICAN COUNCIL ON EDUCATION—See COUNCILS OF LEARNED AND PROFESSIONAL SOCIETIES.

AMERICAN FEDERATION OF TEACHERS—See TEACHERS UNION.

AMERICAN FIELD SERVICE FELLOWSHIPS—See SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

AMERICAN INDIAN, EDUCATION OF. Various types of schools are available for Indian children. These may be classed in three categories: (a) schools under the direction of the Office of Indian Affairs, including reservation community day schools,

AMERICAN RED CROSS, EDUCATIONAL WORK OF

reservation vocational high schools, and non-reservation vocational boarding schools; (b) mission, private, and state schools with which the Indian Office makes contracts; (c) public schools with which the Indian Office makes contracts either directly, or indirectly through the State Department of Education.

As a whole, Indian education today shows the influence of two somewhat opposing points of view. One assumes that through carefully guarding and expanding basic cultural patterns, supplemented by the development and expansion of the economic resources which the group possesses, a greater degree of security and ultimate satisfaction can be secured. The other point of view is based upon the assumption that a minority group is always in a hazardous position and that as long as it remains as a distinctly separate group there is grave danger that it will be pressed into an inferior social and economic position and held there. It follows from this latter position that amalgamation with the dominant group is the ultimate and desirable goal.

In certain places serious effort is being made to get students to study and understand the economic resources—potentialities and limitations—of their home reservations. In harmony with this emphasis, cultural patterns and native arts and crafts are studied and encouraged. Vocational direction and planning are, to some extent, influenced by this content. Group activities, in conformity with old cultural patterns, are encouraged. As an illustration, some Indian bands, utilizing their land resources, have established large and flourishing cattle herds. Similarly, there are farming associations, arts and crafts associations, marketing cooperatives, and even tribal welfare organizations.

In many areas, however, Indians are widely scattered. These are the groups that show the greater influence of white cultural attitudes and habits. Their children go to the same schools as whites, take the same courses, play the same games, and frequently marry their white classmates.

When viewed from this background, it can be stated that there is no typical educational pattern within the structure of Indian education today. Representative schools, both public and private, can be found which are following one or the other points of view. In-

deed, even among the Indians themselves there is no unanimity of agreement on this issue, among either groups or individuals. But it also needs to be emphasized that this very lack of agreement is in the main wholesome. Eventually, a critical analysis of these different educational processes may have great influence, not only upon Indians and their place in American society, but upon other minority groups and even upon the procedures and basic theory of educational agencies generally.

J.G.R.

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AMERICAN RED CROSS, EDUCATIONAL WORK OF. The entry of the American Red Cross into the field of education dates from 1910. Since then this work has proceeded on an expanding scale to meet the demand of a public which is increasingly aware of the need and value of health and safety education. This work is directed to adults and young people.

Starting initially with a relatively modest effort in first aid, the program today includes swimming and diving, life saving and water safety, home and farm accident prevention, home nursing, nutrition, nurse's aid training, and a number of special courses required for membership in the several Red Cross volunteer service corps.

From the standpoint of numbers, more persons have completed courses in first aid than in all the others combined. In the years since 1910 the Red Cross has built up a system of training instructors so that virtually every one of the 3,755 chapter areas is in a position to provide instruction. For those not having qualified teachers, Red Cross representatives make periodic visits to serve this purpose.

There are three first aid courses: basic, advanced, and instructor's training. The basic course consists of a minimum of 20 hours of instruction and practice, while the advanced

covers 10 hours. The instructor's training course, devoted to developing teaching technique, is of 15 hours' duration and is open to selected persons who have satisfactorily completed basic and advanced courses. Instructors in this course are carefully chosen and specially qualified by the First Aid Service at National Headquarters.

As of June 30, 1942, the Red Cross had issued 6,647,738 certificates of all types for completion of first aid instruction. Of this number 3,610,095 were trained during the year ending on the above date. To achieve this figure the Red Cross expanded its instructors corps from approximately 30,000 on July 1, 1941, to more than 150,000 a year later. The majority of these instructors were trained by the Red Cross, though many represented doctors who volunteered their services.

Water safety instruction was begun by the Red Cross in 1914, and up to June 30, 1942, there had been issued 1,230,459 life saving certificates, each testifying the holder had successfully completed the necessary training to enable him to rescue persons in danger of drowning and knew how to undertake to revive those apparently drowned. Courses in swimming were added to this program in 1930, and by June 30, 1942, 1,674,767 persons had qualified as swimmers. Selection of water safety instructors is on a similar basis as in the First Aid Service.

Each year the Red Cross sponsors a series of national aquatic schools, held in readily accessible centers throughout the country. These provide advanced courses in all aquatic subjects, in first aid, and in accident prevention. Open to everyone qualified for advanced work, these schools are frequented by physical education instructors and others who find them the best means of keeping abreast of developments in their fields and, at the same time, maintaining contacts with colleagues in other parts of the country.

In teaching accident prevention the primary effort is directed toward evoking mental alertness toward the factors causing accidents, and outlining necessary steps for their prevention. Courses in accident prevention are of 9 and 12 hours' duration, the longer one covering farm accidents in addition to those occurring in the home. Certificates for completion are awarded. The instructor's training course is

of 15 hours' duration.

In the larger sense, first aid, swimming and water safety courses are accident prevention courses, for attention of the classroom is ever directed to methods of avoiding all types of mishaps. When first aid classes are held for specific groups, such as steel workers, transportation employees, and others, emphasis is placed upon accidents commonly associated with the industry involved and means of prevention stressed.

The Red Cross inaugurated home nursing instruction in 1914. By June 30, 1942, 1,551,943 persons had successfully completed this course. It covers a minimum of 24 hours and is taught by registered nurses selected by the Red Cross Nursing Service. The course is divided into four principal parts. One covers such subjects as protection against disease, selection of food, and healthful home environment. Another concerns community health and sanitation. The care of mother and baby and of infants through their first year forms the third unit. The fourth teaches what to do when sickness invades the home. The increasing shortage of medical facilities during the war added vital importance to this course, and during the year following Pearl Harbor, monthly enrollment of students averaged just under 100,000. To provide home nursing classes in rural areas where registered nurses may be few, the Red Cross uses itinerant instructors who visit centrally located communities and over a period of six or eight weeks conduct classes in surrounding towns.

The Red Cross Nutrition Service was inaugurated in the early twenties when little attention was paid to this subject. Today, with its background of experience and training, this service is proving of tremendous importance. With food rationing limiting diets and with the need of good nutrition never more pronounced, housewives the country over are learning proper means of feeding their families to maintain health, strength, and mental alertness so they can give their utmost to their work. Nutrition is taught by home economics instructors and others possessing the necessary training, most of whom volunteer their services.

Classes in these subjects are open to all persons, and instruction is offered by a majority of Red Cross chapters. Although many

chapters directly sponsor classes for young people, arrangements have been made in many areas whereby they are offered in schools, either as a regular part of school work or as extracurricular activities.

Instruction for prospective members of the various Red Cross Volunteer Special Services is on a different basis than the foregoing. First of all, members of Volunteer Special Services are required to devote periods of time to Red Cross service, and for that reason many persons are not interested in the work. In the Volunteer Nurse's Aide Corps members agree to serve 150 hours annually for five years following training, which covers 80 hours. Instructors are doctors and nurses, and 35 hours is classroom work, while 45 hours of the training is given on the wards of cooperating hospital under supervision of registered nurses. Upon completing their course nurse's aides, in a sense, become a second pair of hands and an auxiliary mind to the nurse, enabling her to devote herself to duties requiring full professional experience and training.

To qualify for the Red Cross Canteen Corps, members must complete courses in nutrition and canteen administration. This latter takes up problems of mass feeding, sanitation and cleanliness, portable canteens, and other related subjects. Other Red Cross Volunteer Special Services, including the Staff Assistance Corps, Motor Corps, Production Corps, Hospital and Recreation Corps, and Dietician's Aide Corps, have developed special courses of instruction for their prospective members.

In its public education work the Red Cross found it expedient to prepare its own textbooks. The first aid textbook was prepared in cooperation with a committee of doctors, the swimming and diving and the life saving textbooks were prepared in cooperation with nationally prominent swimming coaches, and the Red Cross home nursing textbook with a committee composed of doctors and nurses. The same care was taken with the publication, "Food and Nutrition," and in the preparation of all courses for the Volunteer Special Services.

In addition to providing courses in first aid, life saving and water safety, home nursing and nutrition for young people, the Red Cross reaches boys and girls of school age through

the American Junior Red Cross. This organization was formed in 1917 by proclamation of President Woodrow Wilson to give school children an opportunity to serve with adult members of the Red Cross in World War I. Its activities then, as now, were designed to fit the school curriculum.

Nearly all of the present-day Junior Red Cross activities may be tied in directly with school room work. International and inter-sectional correspondence albums, depicting home territory environments and cultures; the packing of gift boxes for foreign children; service to the blind; and community services are frequently incorporated in the social studies. Other activities, such as production for the armed forces, war relief production, first aid and water safety training, and accident prevention are adaptable to numerous classes in elementary and secondary schools.

Other activities—canteen, nutrition, staff assistance, home nursing and disaster preparedness—are practiced both in and out of school. The process of earning money to buy material to construct articles which are then used by veterans, members of the armed services, or less fortunate children elsewhere, is typical of the broadening opportunities offered members of the American Junior Red Cross.

The program is based on the educational philosophy of "learning by doing." With that end in view national and local Junior Red Cross projects have educational features which, though sometimes indirect, serve their purpose admirably.

R.M.H.

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AMERICAN SAMOA, EDUCATION
IN—See UNITED STATES TERRITORIES AND OUTLYING POSSESSIONS, EDUCATION IN.

AMERICAN YOUTH COMMISSION.
The American Youth Commission was organized in September, 1935, by the American

Council on Education to study problems relative to the care and education of American youth from twelve to twenty-five years of age.

The need for the commission arose from the economic and social conditions of American youth, which were accentuated by the depression. Many thousands of youth were roaming the country, destitute and unable to find employment. Other thousands were crowding the high schools of the country, rapidly expanding school enrollments at a time when school budgets were being reduced drastically. In an effort to provide the basic planning necessary to meet this situation, the American Youth Commission was created and was delegated specifically to:

(a) consider all the needs of American youth and appraise the facilities and resources for serving these needs;

(b) recommend procedures and programs which seemed to be most effective in solving the problems of youth;

(c) popularize and promote desirable plans of action through conferences, publications, and demonstrations.

The commission has been primarily concerned with the educational adjustments of youth to the changing social conditions and has been vitally concerned also with matters of health, recreation, crime, vocational adjustments, and other problems closely related to the educational problem.

It has attacked the problems by assembling the research of others on the problems of youth, by organizing conferences to which experts on the various phases of the youth problem were invited, and by carrying on extensive field investigations by its own staff. Among the first of these investigations was the Maryland Youth Survey, the report of which was published in 1938 under the title, *Youth Tell Their Story*. This report revealed that the number of unemployed youth during the depression was probably as large as 4,000,000, a fact later confirmed by the 1937 federal census of unemployment. The findings of the Maryland Youth Survey resulted in a cooperative project, organized in 1938 in four cities and four rural counties, to test community programs of occupational adjustment for youth.

Other major studies by the commission include a survey of youth in the cities of

Muncie, Indiana, and Dallas, Texas; a study of the Civilian Conservation Corps, which also embraced observation of NYA residential projects and work camps being conducted under private auspices; and a study conducted in several centers in the South and North to determine the effect of class and caste restrictions upon the developing personality of Negro youth.

The recommendations of the commission frequently have been implemented by the publication of bulletins and reports, radio broadcasts, conferences, and other techniques. C.S.

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AMERICANIZATION. The history of Americanization has moved from a haphazard, and even negative, program of education to one that today is the subject for careful scientific and professional thought; from a frame of reference around the foreign-born only, to one that encompasses the native-born as well; from the narrow confines of naturalization to the broad implications of citizenship.

In the early days of the Republic, little or no thought at all was given to the Americanization problem. Such consideration as was sporadically directed to it, referred solely to local problems growing out of the increasing admissions of immigrants to this country. The native-born, it was assumed, were thoroughly

AMERICANIZATION

Americanized through their heritage, their learnings, their associations, and their life pattern. The foreign-born were welcomed as an answer to an industrial need and because they filled in voids in the labor fields. Their impact on our political and social life was accentuated only when such movements as the Know-Nothing Party bitterly opposed further immigration in the 1850's, or when the Native American Party initiated a wave of violence against the Irish Catholics earlier in our history. Although immigration restrictionist movements flourished throughout these, and later years, the influx of immigrants continued to increase while concepts of Americanization remained dormant.

As the years passed, opposition to the entrance of immigrants, on the basis of potential social and political dangers, grew in intensity. While industrial, labor and sectional groups had initiated these attacks up to the 90's, sociologists found the subject worthy of keen, relevant and close consideration, and gave it growing attention. Studies and reports were submitted asserting that the South-Eastern European immigrants were endangering American institutions, and that their concentration in our cities handicapped the development of any homogeneous growth in this country. This sociological approach focused attention on the specific problem of Americanization. It was, moreover, to be the forerunner of a concentrated attack on all non-Nordic aliens. In later years, this thesis was supplemented by the findings of the Federal Immigration Commission, whose extensive report in 1911 stimulated the interest of social agencies throughout the country in this subject. A very marked schism developed among those interested in the problem of Americanization—a schism that was to express itself in the next quarter century in terms of legislative enactments, increased emphasis on school programs, and a change in the general reaction by the alien in the United States.

With the opening of World War I, the attention devoted to the Americanization movement became more widespread. The loyalties expressed and demonstrated by aliens in the United States toward their native countries awakened us to the futility of the programs and attitudes that had been indulged in under the heading of Americanization. The concept

of hyphenated-Americans was widely attacked in the press. Agencies at once recognized this situation as one demanding attention. Classes in Americanization were organized in schools, settlement houses, factories, and homes. The Federal Bureau of Education and the Naturalization Division of the United States Immigration and Naturalization Service prepared a *Federal Textbook on Citizenship Training* which was distributed free to all accredited schools. Americanization bureaus, which still operate, were organized by statute in many states. Labor groups, factories, Y. M. C. A.'s, and churches joined the schools in this movement. All sought to Americanize quickly the foreign-born in this country. Aside from an inept effort on the part of the Federal agencies to suggest plans, and occasional national and state conferences of interested groups, there was no central direction or program or guidance. Content, method, and approach varied. In general the aim was a mastery of elementary English, American history and civics, and geography. Later some trade subjects were added.

But as the post-war years rolled on, and the depression set in, an anti-alien philosophy, based on the numbers of unemployed in this country, began to make itself increasingly evident. The vast tide of immigrants was attacked as one of the primary causes for the depression, with the consequence that Americanization programs became more and more unpopular. In addition, financial distress and lack of opportunities resulted in a severe drop in class registrations. Social scientists, who refused to accept quick and superficial judgments, began a belated analysis of the Americanization movement; their findings led to many changes in heretofore accepted philosophies and objectives. In place of Americanization, assimilation began to be stressed; soon the emphasis was again transferred to the problem of citizenship training of both the native-born and the foreign-born. For the solution of this problem, responsibility was placed on the schools generally and on adult education specifically.

It became evident that the procedures which had been blindly followed since emphasis had been placed on Americanization, were in part commendable and in part open to criticism. One of the major fallacies lay in treating Americanization as an osmosis-like process;

it was held that unconsciously a spirit of loyalty to, and an understanding of, our institutions would seep in. In its later development, this expressed itself in the "Melting-Pot" theory, in which it was assumed that all alien cultures, philosophies, and mores were fused into the American pattern through naturalization and Americanization. But, at the same time, there existed a very coherent cross-section in this country whose philosophy on the subject was expressed tersely and significantly in the attitude, "We let them in; now let *them* work it out."

The first World War crystallized some of the weaknesses and fallacies in these theories. We realized that stressing the obligation of becoming a naturalized citizen did not necessarily make for loyal American citizens; that the acquisition of a certificate of naturalization might be treated by the alien as an economic advantage rather than as a patriotic fulfillment or as a release from an undesirable classification; that, in themselves, such certificates were no assurance of the addition of interested citizens. Accordingly, efforts were made to supplement courses in *English and Citizenship* with programs involving participation in the American scene by the foreign-born. The *I-Am-an-American Day* became a national function for all new citizens in 1938. Attendance at celebrations, trips to historical places and to seats of government, and public meetings to commemorate their advent into citizenship were adopted in varying degrees. Yet, up to this time, progress in Americanization was still expressed by a numerical index: the number of aliens naturalized. The question had not yet been answered: how to inculcate citizenship, through living, as a sense of oneness with this country.

The solution to this problem was not simple. It was—and to some extent, still is—difficult to assimilate, and establish a feeling of loyalty in a people who were being attacked and against whom discriminations were being practiced. Threats of deportation and of registration were renewed from period to period both in Congress and by private anti-alien groups. Discriminations against the employment of aliens by states and municipalities, by industry, and by labor unions continued to mount. Social distinctions and anti-alien prejudices were in evidence in all forms of human contact and intercourse. The restric-

tive laws, beginning with those of 1882, and continuing through the Literacy Test Law of 1917 and the National Origins Act of 1924, convinced the alien that he was unwelcome. As the result of such attacks and attitudes, the movement toward Americanization suffered.

However, as an offset to this, there came into existence a concurrent program, led by sympathetic welfare agencies and churches, and by groups within the legislative bodies. These groups aimed at developing a sense of self-respect and pride in the alien; they spoke appreciatively in terms of the alien's background, his contributions, his culture, and his eagerness to become an American. Much was made of the 27th Division in World War I because of the international character of the cross-section of its soldiery; later an "All-American Week" was widely celebrated. Earnest counter-attacks were directed against the forces that sought to undo the basic values in Americanization.

These organizations awoke to the fact that the effort to Americanize through the act of naturalization was, by itself, of dubious value. With mere naturalization as the goal, citizenship was looked upon as a matter of material value, rather than as a privilege founded on loyalty and understanding. Aliens were advised to "get their papers" because of the benefits they would gain. Stress was laid on rights, rather than on obligations and duties. In teaching citizenship, too much emphasis was placed on the science of government, and too little stress on the development of a spiritual unity with our institutions, our backgrounds, and our national life. Not enough thought had been given to the thesis that if real Americanization was to take place, it must come through a feeling rich in American understanding—one that would be in harmony with our political philosophies and loyal to our objectives. We overlooked the fact that nationality is in essence a spiritual thing.

There were those who, like Prof. Fairchild, held that "traits of nationality will not combine, and so, nationalities as a whole cannot be mixed". Americanization was not to be interpreted as a sort of religious conversion. On the contrary, it called for an evolutionary synthesis of racial, cultural, and economic factors. Some assailed the theory of Amer-

icanization — and later assimilation — as an error in that it assumed that foreign cultures could be absorbed or fused; they maintained — and this school has had a growing following — that cultural pluralism, in which independent cultures exist side by side, and not the fusion of cultures, was basic to any real program of Americanization. They urged that the foreign-born should not be encouraged to forget their background but rather that they be urged to incorporate its best features into the American pattern.

Out of these efforts to arrive at a sound program of Americanization has come a new concept. Social scientists and educators recognize the need for a new directional force in this movement. It has become obvious that a single emphasis, in Americanization, is a limited and inadequate approach. It has been recognized that mere birth in this country may automatically confer citizenship on a person, but that it does not necessarily indoctrinate him for sound American citizenship.

As a result, adult education has today taken up the cudgels for Americanization through its program of citizenship training for all. The schools, the private and public agencies, the army and the navy are evolving lessons for the classroom and over the air, designed to Americanize Americans. What began, just before the turn of the century, as a well-meant but haphazard drive toward the Americanization of the foreign-born, has developed into an enriched and purposeful program for the citizenship training of young and old, that has sought to attain, through understanding and intelligent acceptance, a faith in our democracy making for political and social homogeneity. (See ADULT EDUCATION; CITIZENSHIP, EDUCATION FOR.) H.F.

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ANALOGIES TESTS — See OBJECTIVE TESTS AND EXAMINATIONS.

ANALYTIC METHOD. Analysis is a general term referring to a number of methods of investigation which have the common characteristic of systematically considering some type of data in detail. Most commonly it means separation of an object into its parts and consideration of their relations to one another and to the whole.

In reading instruction, those methods of teaching beginners which start with comparatively large units and work down to smaller units are called analytic methods; they include the story method, the sentence method, and the word method. The alphabet method and phonic and phonetic methods, which start with parts and build up to the whole, are in contrast called synthetic methods. (See READING, METHODS OF TEACHING.)

In educational research, an analytic method is one which breaks a large problem down into a number of specific issues which are more amenable to carefully controlled investigation. The classification, tabulation, and statistical manipulation of data so as to discover important facts and relationships is another type of research activity for which the term analysis is used. (See RESEARCH, EDUCATIONAL.) A.J.H.

ANALYTIC PSYCHOLOGY—See PSYCHOLOGY, SCHOOLS OF

ANATOMICAL AGE—See GROWTH AND MATURATION.

ANECDOTAL BEHAVIOR JOURNAL. The Anecdotal Behavior Journal is that part of the pupil's total cumulative record, sometimes called Behavior Journal, which is made up of the chronological recording of significant items of conducts, episodes in the life of the pupil, word pictures of the child in action, or any narrative of events in which the pupil takes such a part as to reveal something which may be significant about his personality.

Anecdotal records may be of three kinds: (1) simple narratives of the child's actual behavior responses or events in which he takes a significant part; e.g., *Nov. 16. George took charge of assembly today with poise.* (2) record of the observation with an interpretation; e.g., *Dec. 4. George did part of a motor experiment today in which the instructions specifically stated that the instructor must be*

present. George sought the aid of a student instead. When things went wrong he pulled the switch promptly and avoided trouble. Interpretation: It should be noted that he had the presence of mind to save the situation. He goes ahead by himself too much without regard to instructions. (3) the anecdote accompanied by recommendations either to the student or some supervising officer; e.g., March 12. When called on today Betty acquitted herself very well but I do not recall that she ever volunteered in my class. She seems friendly and responsive when approached. I know she has unusual native ability and I do not understand why she does not do more and better work. Recommendation: I recommend that she be interviewed by the supervisor.

Anecdotes carefully recorded over a period of time, with entries made by different persons observing the pupil, give an objective picture of the personality of the child in action. They should be of special use to the teacher, guidance officer, or other school officials, but should be kept as confidential material.

The general purposes served by anecdotal records are: (1) as data needed for increased faculty understanding and diagnostic material for the study of the total personality; (2) as data needed for counselling; (3) as data for increased understanding of the pupil outside of school; (4) as material for curriculum design and control; (5) as evidence for evaluating the success of a program for an individual child; (6) as qualitative data to supplement quantitative; (7) as illustrative material for textbooks and other documents essential to professional progress; and (8) as an indication of the philosophy of the school using them, e.g., helping pupils develop a functioning personality pattern.

Though many educators and psychologists agree that the anecdotal behavior journal is a useful means of assembling personal data concerning various students—data that may be of great value in guidance work—many objections have been raised to the use of the anecdotal behavior journal. First, since it is the teacher who usually determines which incidents merit recording, the impression created by a reading of the anecdotal record may reflect the teacher's opinion of the student as much as it does the student's behavior patterns. Thus, the teacher who regards a

particular student as uncooperative may record every instance of his failure to cooperate even though the teacher may overlook similar instances in which other students are at fault. Despite the apparent emphasis on factual accuracy, the anecdotal behavior record may be no more objective than is the traditional rating in conduct or behavior which is recorded at the end of the term. Second, the value of the anecdotal behavior record varies with the significance of the incidents that are recorded. If the teacher has little insight into child psychology or only an inadequate understanding of the use for which the material is intended, the anecdotal behavior journal may be nothing more than a bulky collection of petty and irrelevant incidents. Third, when classes are large, the labor and time consumed in the teacher's writing of the incidents may lead either to unwarranted inroads on the teacher's time with the consequent neglect of other activities that may be more valuable, or to the attitude that the recording of these incidents is a chore to be performed as quickly as possible. These objections indicate that the introduction of anecdotal behavior journals is likely to be of little value unless the teachers who are to assemble this information are convinced of the need and understand the purposes to be served.

Since the anecdotal behavior records are qualitative in nature, the user must depend on his own knowledge of psychology and psychiatry to interpret them. A manual of directions has been prepared to assist schools in introducing anecdotal records into their personnel practices. (See CHARACTER EDUCATION; GUIDANCE; MENTAL HYGIENE; PERSONALITY.) M.S.Q.

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ANNOYERS AND SATISFIERS.

Thorndike (*q.v.*) defines *annoyers* and *satisfiers* as after-effects of a response. They are rewards, punishments, failures, successes,

pleasantnesses, and unpleasantnesses to the learner in terms of his wants, interests, and attitudes. Whether they occur fortuitously, the learner having no expectation of receiving them when making his response, or whether they are the expectation for which the animal or person is striving, seems to matter little, according to Thorndike. In either case there will be a tendency to repeat the action which has brought the satisfier. The effect of annoyers is very much weaker than that of satisfiers; success and reward are much more potent than punishment and failure. In some instances, an annoyer may even strengthen, rather than weaken the connection to which it is applied. Though Thorndike connects annoyingness and satisfyingness with wants and interests, the interest need not be in the learning which is undertaken. Annoyers and satisfiers act almost equally well, according to Thorndike, whether they arise intrinsically from the activity, or whether they are added as extrinsic motivations. Practically all of Thorndike's work with human beings dealt with the memorization of facts, poetry, and false statements, which may be the reason for his conclusion regarding extrinsic and intrinsic satisfaction. Moreover, where intrinsic satisfyingness was clearly greater with one kind of material than with another, that material was learned more easily by Thorndike's subjects.

Thorndike's later work on satisfiers and annoyers modified his famous "law of effect" sufficiently so that it became much more acceptable to some who had radically criticized it. It became clear that "effect" was not meant to be synonymous with "affect" or hedonistic tone, and that though the description of the learning act was oriented in terms of after-effects rather than in terms of purpose and goal, want and purpose were, nevertheless, considered basic to the process. (See LEARNING.) B.B.F.

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ANNUAL PROMOTION—See PROMOTION.

ANNUAL, STUDENTS'—See PUBLICATIONS, SCHOOL.

ANTIOCH PLAN.

ANNUITIES, TEACHERS'—See TEACHERS' ANNUITIES.

"The Antioch Plan" of education—the cooperative work-and-study plan whereby students alternate periods of study on campus with periods of regular work for pay in industries and professions off campus—was started at the University of Cincinnati in 1905 for its engineering students. In 1920, President Arthur E. Morgan applied the plan to all students in all departments at Antioch, thereby for the first time using the plan for liberal arts as well as technical students. Since 1920 the plan has been adopted in many American colleges and in some foreign countries, notably Russia.

In the plan, two students of comparable maturity and ability hold one job, alternating between college study and the job at regular intervals. At Antioch the shift takes place at quarter intervals of 12 weeks. Some 300 employers in some 22 states cooperate annually with the college in providing educational and work opportunities for the students. In some cooperative colleges, the plan is used primarily to give self-support to the students. At Antioch and others, that purpose is only incidental. The latter colleges seek to give a well-rounded and a more realistic education through a combination of a general education program and job placement.

Possible disadvantages of the plan include interrupted study periods, the strain upon students who are not superior both mentally and physically, and the waste of time for students who already have a realistic understanding of the workaday world and an adjustment to it. The advantages of the plan are apparent: the broadened horizons and personal development from the interplay of general education with work in a variety of environments; the close association with many students working periodically in many different occupations; vocational education of the most practical sort; experience while still in college which facilitates adjustment to one's life work after leaving college; and the elimination of many adolescent frills from campus life. W.B.A. and M.G.F.

ANTONYM TEST — See OBJECTIVE TESTS AND EXAMINATIONS.

APPERCEPTION. The term *apperception*, less used now than formerly, usually refers to the relating of what is being presented to the senses with what has previously been experienced—the understanding of the new in terms of the old. Leibnitz used *perception* to denote the passive reception of sensory data (equivalent to modern *sensation*) and *apperception* to denote the understanding of what is sensed in terms of its causes and relations, much as the term “perception” is now used. Kant, in his use of *apperception*, stressed the characteristics imposed upon sense data by the nature of the mind itself. Herbart, emphasizing the assimilation of sense data to ideas already present in the mind, used the term *apperceptive mass* to denote ideas already in the mind to which the new material is assimilated.

The principle of apperception in educational method, as formulated and developed by Herbart, is based upon the psychological law that the nature of the learning response depends upon the past experience and present frame of mind of the learner as well as upon the nature of the stimulation. As a principle of procedure for the teacher, this means that stimuli must be presented that are adapted to the experience and mental set of the pupils, or else the pupils must be given the experience and put in the right frame of mind before the stimuli are presented. In other words, learning must proceed from the known to the unknown.

This principle is more often designated today as the *principle of preparation and mental set*, or the *law of readiness*, or the *principle of reference to experience*. Although first formulated psychologically by the Herbartians, the principle was applied by the great teachers of earlier times, particularly by Jesus who used it most effectively in His parables. (See HERBART.) E.H.W.

APPLIED MATHEMATICS—See MATHEMATICS, TEACHING OF; RELATED INFORMATION.

APPLIED SCIENCE—See RELATED INFORMATION; SCIENCE, TEACHING OF.

APPOINTMENT OF TEACHERS—See TEACHERS, APPOINTMENT OF.

APPORTIONMENT OF SCHOOL FUNDS—See FINANCE, SCHOOL.

APPRECIATION. An *appreciation* is a product of learning which has value in terms of feeling. It is the personal value, the worth, the satisfaction one gets from experiencing the world of things about him. An appreciation connotes an emotional, as opposed to a purely intellectual, grasp; one may have technical knowledge and understanding of a phase of his environment and yet have no appreciation of it. The essence of appreciation is feeling or emotional warmth; it is the desire to relive a previous experience or have a similar one that is emotionally stimulating.

Within recent times this phase of education has received more and more attention. It is realized that much is lost in our schools if pupils are engaged solely in storing up information and do not learn to appreciate the beautiful and artistic in life. Since there is a close relationship between appreciation and behavior, the development of appreciations should influence one's activities during leisure time—his selection of literature, his choice of radio programs, his preference for musical selections, etc. It is difficult to screen out any of the emotional learnings that influence conduct—such as interests, attitudes, and ideals—but it is safe to maintain that appreciations are important in themselves and as part of the whole spiritual side of man and his worth to society.

To the person trained in color harmony, the colors in the living room must not clash; to a trained musician, the sound must produce harmony. These elements of harmony in music and colors, balance and equilibrium in art, rhythm in motion, and symmetry in forms and shapes are the æsthetic patterns which conform to the highest conceptions of the arts, and are probably necessary for appreciation to those trained along these lines; appreciations which have reached high levels of attainment cannot drop to lower levels readily or at will.

In developing appreciations the apperceptive basis should receive first consideration. The pupil can appreciate only within the limits of his experiential background; he must include himself in the appreciation being developed; his experiences are tied in or associated with the development. Thus the city child who has had no taste of country life may see little that is appealing in a story dealing with the sights and sounds so familiar

to a country child. Secondly, understanding is necessary. This is the cognitive or knowing element, and it is this insight which comes early in appreciation formation. To realize how much understanding contributes to the growth of appreciation one has only to compare the reactions of the child who listens to Tchaikowsky's *Nutcracker Suite* after hearing the story with that of another who listens without such preparation. Thirdly, association with the emotions produces the appeal, the value, and the satisfaction of the learning experience. During an appreciation lesson the teacher's personality, the other pupils, and the environmental factors should be conducive to growth of the appreciation. No teacher can force children to appreciate—he can only bring the right influences to bear. Fourthly, pupils should be given opportunities to be active participants in the learning activities leading to the inculcation of appreciations. Their choices of selections in reading and literature should be respected; their ideas should be solicited; and their efforts praised. Development of appreciations is gradual and the instructor should remember that it grows in terms of years, not of class periods. Fifthly, measurement of appreciations by traditional methods is not recommended as a general procedure. Such tests may measure form and fact rather than genuine feeling and fervor. A pupil can memorize long lists of names of composers and compositions as unemotionally as he learns the spelling of unrelated words. It is almost as futile to measure musical appreciation by asking pupil to identify composers as it would be to measure his appreciation of literature by testing his ability to spell the words which authors use.

Evaluation, by means of objective tests, of growth in ability to appreciate has generally been confined to some kind of written response requiring degrees of discrimination. In prose and poetry several selections of varying degrees of worth are included in the test and the examinee is required to rate the selections in descending order of aesthetic value. In many instances the poem or prose selections deal with the same idea, but the original production by the poet or author is changed and reworded so as to produce selections of varying degrees of merit. In music the same general technique prevails. If the original masterpiece is chosen by the child as the

best, then he shows that he has high appreciation; if the most distorted selection is chosen, it shows the lowest degree of the ability to appreciate. Another kind of measuring device is the questionnaire. A series of questions is given, say about literature, by which the pupil indicates whether he has read any other books similar to the particular one studied, or whether he has read at all during his leisure time. The assumption underlying the use of this type of test is that those who know most about books are those who like reading best and who appreciate literature most.

In addition to the so-called formal tests, a number of informal ways of determining a pupil's appreciation may be utilized by the alert teacher; he may observe the pupil's attitude toward subjects, the number and kinds of books and magazines he reads, his responses in class, his choice of radio programs, of topics in written work, of movies, and his hobbies and leisure time activities. (See ART EDUCATION; ENGLISH, TEACHING OF; MUSIC APPRECIATION.) F.A.B.

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APPRENTICE TEACHER. An apprentice teacher is usually regarded as one who has completed the formal requirements for teaching and who is engaged in his first year of actual teaching. Generally, an apprentice teacher is regarded as on probation pending satisfactory completion of the first year's experience, often under some sort of special supervision. Some institutions use the term *apprentice* or *cadet* to apply to the status of *student teacher*. (See TEACHER EDUCATION.)

R.F.B.

APPRENTICESHIP EDUCATION. Many Federal, State, and local leaders in vocational education use the terms "apprenticeship training" and "apprenticeship education" interchangeably. The basic feature of apprenticeship is teaching a learner "on the job," and supplementing his occupational experience and training with "related instruction" (*q.v.*). The latter includes related

mathematics, science, drafting, and trade theory. At least four hours per week should be given to carefully planned related instruction.

The program of apprenticeship education should conform to accepted standards and should be given in accordance with plans approved by representative apprenticeship advisory committees on which labor and employers are represented equally.

Apprenticeship training should involve the cooperation of at least three agencies: the schools, labor, and the State employment service. By written agreement between the U. S. Office of Education and the U. S. Department of Labor, the U. S. Office of Education is responsible for the training, and the U. S. Department of Labor for safety, health, hours of work, compensation, and other working conditions. The Employment Service has responsibility for registering, classifying, and assisting workers in securing suitable employment.

It has been estimated that in 1941 the United States had 125,000 apprentices for skilled crafts, and that it urgently needs twelve times that many. (See VOCATIONAL EDUCATION.)

F.T.S.

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APTITUDE. It is becoming general to apply the term *aptitude* to the degree with which the present characteristics of a person are symptomatic of his ability to acquire, with training, certain specified knowledges or skills, rather than to define aptitude as some hypothetical innate faculty or power. The term implies that if persons who formed a random sample of the population began training or working at some specified task under similar conditions some would be more successful than others. It does not imply that if two persons are to be compared as to the degree of aptitude they possess, the characteristics chosen for observation must be one with regard to which neither has had an advantage in training.

Aptitude tests are similar to intelligence

tests in that they forecast or predict. Indeed, intelligence tests are often called general aptitude tests or mental aptitude tests. Aptitude tests as a whole, however, ignore many of the theoretical assumptions upon which intelligence tests are built. Aptitude tests are planned in terms of a definite purpose rather than in terms of differences among people. It is that purpose which determines what shall constitute the "test" of the aptitude. If the purpose is to determine whether *A* will make a good pilot if he is given the army aviation training, *A* is tested in terms of what it is thought will be, or more accurately, what has proven to be, predictive of aviation success. Aptitude tests are given at the time when it is necessary to make such a prediction. A person is not expected to obtain the same score on the same aptitude test throughout his life. In most instances the aptitude testing devices generally used almost preclude such a possibility.

Various measures for judging aptitudes are in use; some formal, some informal. Interest, initial ability, and incidental learning have all been widely used as signs of aptitude. In many schools where it is desired to take individual aptitudes into consideration, the pupils are provided with a rich environment and a wide range of material for free periods of study and use as they wish. The pupil's interest as defined by what he engages in, and the quality of his performances in this area are interpreted as revealing to observing teachers the aptitudes which it would be valuable to increase with special training.

Poor beginning performance has frequently been used in high school and college to eliminate from future training in a specific subject all those who lack sufficient aptitude for success. While very poor beginning performance is probably a better indicator of failure than excellent beginning performance is of high success, this technique often involves much error, particularly if there is too short a training period before judgment is made. Curves of learning vary from individual to individual, thus making it difficult on the basis of the beginning of the curve to predict the remainder with accuracy. Moreover, the cause of the poor start may be a deficiency in prerequisite knowledge or skill which can be attained by study. His poor beginning

means that the student is not ready to undertake the training now, rather than that he will never succeed. Reading aptitude tests are usually, though not always, termed reading readiness tests for this very reason. A period of reading readiness training is inserted, where necessary, between the time the test is given and the time specific reading teaching is begun.

Standardized aptitude tests use devices similar to those employed informally. The Stenquist Mechanical Aptitude Test and some of the army aptitude tests, for example, have picture sections which test incidental information about mechanics and mechanical objects. Other aptitude tests, such as reading readiness tests, foreign language prognosis tests, mathematical prognosis tests, Stenquist Mechanical Assembly Test, the MacQuarrie Test for Mechanical Ability, test the subject on the various functions involved in the undertaking in question. For example, being able to choose out of four words the two that are alike, and being able to select the correct pronunciation out of four different pronunciations given by the examiner for the same word are two tests of reading readiness. Being able, given some vocabulary and grammatical rules of an artificial language, to translate a passage in that language is one test of foreign language prognosis; given all the part of simple tools to put them together into a working tool is one test of mechanical aptitude.

Some aptitude tests appear to differ little from ability or achievement tests. There is, however, a fundamental difference between these two types of tests. The achievement test measures what the person can do now; the aptitude test is not valid unless it predicts future success. Aptitude tests are therefore empirically validated by means of correlating performance on the test with performance after training, or on the job. Unfortunately, even many of the widely used aptitude tests have only a low validity. Taken together with other factors, however, they often become useful instruments for guidance.

One other fact to be noted is that aptitude tests are more valid in predicting how successful the person will be in acquiring the ability, provided of course that he undertakes the training, than they are in predicting vocational success. Too many factors are

involved in vocational success to allow aptitude tests to be sufficiently predictive. (See GUIDANCE; PREDICTION OF SUCCESS; PROGNOSTIC TEST.)
W.D.C. and B.B.F.

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APTITUDE TESTS — See APTITUDE; PREDICTION OF SUCCESS; PROFESSIONAL APTITUDE TESTS; PROGNOSIS; STANDARDIZED TESTS.

ARCHITECTURAL EDUCATION.

Architectural education today presents a confused picture, reflecting the status of the architectural profession, but by 1942 the necessity for a creative basis for architecture as opposed to an eclectic approach was recognized. The grounding of students in the "orders" of architecture had been generally discarded, but the question of what to substitute as a basis of training had not been answered. The growing importance of the mechanical or operating elements of buildings, increased use of prefabrication, a growing conviction that architecture starts with site and city planning—all these increase the knowledge the architect should master. The dwindling practice of the small office, the mushroom growth of the large factory-like office, the architect working as an employee of industry, and the extension of governmental agencies which practice architecture make it difficult for the schools to present a single educational objective. Moreover, the number of states requiring an examination to obtain a license to engage in independent practice may present a threat to education, because pointing toward these examinations may freeze material and methods of teaching.

There are three broad types of educational methods employed today—the apprentice, case, and interne. The apprentice type is the oldest, probably coming from the feudal guilds. This method worked best when the student helped a strong practitioner who used few materials and was intimately connected with the entire process. The multiplication of materials and the complexity of mechanical parts requiring a systematic study of sciences are arguments against this type of train-

ing. At Frank Lloyd Wright's Taliesin Fellowship this system of learning by doing is followed, although Wright himself had formal engineering training.

The system of following a strong master is still reflected in many schools using the case method in which the design staffs are headed by outstanding practitioners. There is a growing agreement in almost all schools that faculty members should engage in practical work. The case method, followed by almost all schools, was developed in the *École des Beaux Arts* in Paris and has since been successfully adapted to teaching in other fields, notably law. Architecture is conceived as the synthesis of many factors, and assumed problems of varying degrees of reality are invented for the student to solve. Unfortunately, the original problems were built around a vocabulary of classical elements and rules of proportion which stigmatized the whole procedure even though subsequent *projets* threw off these limitations. Today's problems in all schools are based on increasingly realistic limitations of site and factual data. Here in America the *Beaux Arts Institute of Design* still carries on, although the major number of the affiliated schools for which it formerly supplied problems to be competitively judged have resigned. It is worth noting that lately a prejudice against competition in favor of cooperative work has grown in the minds of many students, although practicing architects agitate for more competitions as a means of obtaining commissions. The *Beaux Arts Institute* still fulfills a need, issuing a hundred programs a year and numbering some of the most distinguished American architects on its active committee.

Most schools recommend a broad general background in Liberal Arts and Sciences before the undertaking of professional study, and require one year of their five-year course in this type of work. All agree more time is desirable.

In the preliminary stage of creative training may experiments are being tried. Some schools stress actual contact with materials: having students lay brick, do carpenter work, run testing machines, etc. Some have had classes build a small house; others rely on exercises in abstract design. All agree that there must be a serious attempt to bridge the gap between the design on paper and mate-

rial construction.

Draughting room practice in design is augmented by lecture and laboratory courses covering graphics, freehand drawing, history, mathematics, construction or engineering, professional practice, and theory. At Yale the material presented in these service courses is scheduled at a time when it will best integrate with the subject of the design projects.

Pratt Institute began an experiment in interne teaching in which advanced students under the supervision of their instructors undertake actual commissions of a size or nature which would be unprofitable to established practitioners. This was meant to bring into the school realistic problems and parallel the free service offered in medical clinics on the theory that, if but a small fraction of American building is architect-designed, some effort should be made to extend this service to the community.

The problem of student guidance between graduation and the time he has acquired sufficient experience to practice has not been well solved. Most schools require their students to work for an architect or builder during a part of their holidays; some suggest an interim year spent in this manner. The American Institute of Architects attempted a system of having their members advise young men in their post-school years.

Foreign travel is still a recognized part of the thorough training of an architect. Many schools have fellowships granted for this purpose. There are also open fellowships for general study and travel, among them the Paris and Rome Prizes for study in those cities and travel in Europe. In recent years students have been more influenced by northern Europe than by Greece and Rome.

Schools of architecture are generally part of a larger institution, less than a tenth being independent schools, a quarter being units of fine or applied arts groups, and the remainder being units of engineering groups, awarding degrees in architecture as well as architectural engineering.

More and more schools are presenting material on city and regional planning. The future will probably see an increased number of large-scale planning projects, and at the present time there are too few professional planners. Two schools are offering courses leading to a bachelor's degree in planning.

ARCHITECTURE, SCHOOL

For the most part there is a wide divergence of opinion both as to the subjects to be taught and where to place the emphasis in this all-important field, which calls for a knowledge of law, sympathy for sociology, the precision of the engineer, and the tact of the politician, as well as the design skill of the architect.

R.M.B.

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"Philosophies Underlying Teaching in Schools of Architecture", *The Octagon*, XIII: 25-37, Feb., 1941.

ARCHITECTURE, SCHOOL. Changes in school organization resulting from a broader concept of the educational program have been accompanied by other changes in keeping with the newer educational psychology and philosophy. Noteworthy among such concomitant changes are the changes in architecture. The school plant generally reflects the attitude of the people toward education. The school plant described by Barnard as "intended to hinder and not promote, to defeat and not to perfect the work which was to be carried on" is being replaced by the plant designed and equipped especially for the type of work to be done. In other words, the school plant is now considered a service agent subordinate to the general purpose of education. This idea is called the *functional conception of the school plant*. The word *functional* is defined as "performing or serving a function, as a useful purpose or special activity; designed, developed, considered with reference to a function or to functioning."

In the development of a functional school plant educational planning precedes planning of the plant. The school today is considered as an agency to meet the educational needs of the pupils and of the community in which they live. School buildings are conceived of as factors in facilitating the instruction of the child and in satisfying other educational and social needs of the community. According to this philosophy the nature of the school architecture is influenced by the objectives of education, the type of curricu-

lum, the plan of school organization, the number, ages, and educational levels of the pupils, the size of classes, the equipment, the methods of teaching, and the use of the plant for community needs.

There is a definite tendency to consider the school as an institution within a community, a kind of community workshop, a focal point of community welfare, a place where school children are happy and where they learn not only the three R's but also abilities, skills, and attitudes in many fields. The school is a place where adults as well as children go to find help in solving their problems, and where they participate in community life. The school is a place where democratic living attains its highest purpose. This newer conception of the place of the school in the community has influenced the planning of school plants as well as the architectural designs of school buildings. The tendency is in the direction of cooperative planning in which the school architect, teachers, pupils, principals, janitors, and patrons, as well as the superintendent, participate. Every school and community has its own peculiar problems. The school plant is cooperatively planned to provide the best possible aid in the solution to educational problems.

The following factors should be considered in selecting a school site: the service which the school is to render as part of the community's total educational program, the geographic center, the population and population trends, the accessibility to streets or roads, the size of the site, the environment, the drainage, and the nature of the soil. It should be remembered that playgrounds are as important a part of the educational plant as the buildings and that healthful and wholesome environment is essential. Any site must be selected so as to fit properly into the total building program of the community.

There is a tendency away from the "monumental" conception of school buildings toward simple architectural plans, attractive and dignified but not imposing or ornamental. Exteriors are simple in line and in ornamentation and depend for their beauty on proper massing, proportion, materials, and harmony of color. Buildings are being designed for the particular purpose for which they are used, yet they possess flexibility and adaptability so that they may be adjusted to

AREAS OF LIVING

meet the needs of a dynamic school program.

In the planning of new school buildings there is an increasing emphasis on provisions for the safety, health, and comfort of pupils and teachers; larger classrooms, good ventilation, proper lighting, teachers' rooms, and adequate storage space are being provided. More attention is being given to housekeeping problems in selection of construction materials, in provision of sink rooms, electric outlets, and hot water, and in elimination of dust-catchers.

The architectural design and shape of school buildings should fit into the environment so as to present a satisfactory appearance and should at the same time provide elasticity to permit expansion without destroying the beauty and symmetry. Two types of plans for exterior outline for school buildings are used, the *open* and the *closed*. The open plans are usually similar in form to letters of the alphabet. Buildings in T, H, E, U, I, and Y, or similar shapes are frequently recommended. The closed plans are the solid rectangle, the hollow rectangle, and the rectangle with interior courts and auditorium.

With respect to safety features the American Institute of Architects has grouped buildings under five types as follows:

Type A—A building constructed entirely of fire resistive materials, including its roof, windows, doors, floors, and finish.

Type B—A building of fire resistive construction in its walls, floors, stairways, and ceilings, but with wood finish, wood or composition floor surface, and wood roof construction over fire resistive ceiling.

Type C—A building with masonry walls, fire resistive corridors and stairways, but with ordinary construction otherwise, i.e., combustible floor, partitions, roofs, and finish.

Type D—A building with masonry walls, but otherwise ordinary or joist construction and wood finish.

Type E—A frame building constructed with wood above foundation, with or without slate or other semi-fireproof material on roof. (See BUILDINGS, SCHOOL.)

L.E.M. and M.F.S.

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AREAS OF LIVING. In curriculum development an area of living is defined as a group of related life activities set up for convenience in curricular planning and organization. Areas of living are derived from an analysis of activities carried on by pupils. The broad categories of such an analysis become the centers around which learning activities are organized.

Curriculum workers have turned to sociologists, anthropologists, economists, and other research workers in an effort to find those aspects of life that should be taken into consideration in organizing and developing a curriculum. A number of state and city curriculum programs give consideration to these studies as a basis for the scope of the curriculum.

Frederick, following an analysis of thirty-eight classifications of human activities, derived the following major areas of living:

(1) Protecting life and health; (2) Living in and improving the home; (3) Conserving and improving material conditions; (4) Co-operating in social and civic action; (5) Getting a living; (6) Securing an education; (7) Expressing religious impulses; (8) Enjoying and expressing beauty; (9) Engaging in recreation.

Harap recommended the following social functions of the curriculum as a basis of his studies:

(1) Living in the home; (2) Citizenship; (3) Organized group life; (4) Communication; (5) Transportation; (6) Production; (7) Consumption; (8) Leisure.

The Commission on Secondary School Curriculum of the Progressive Education Association based the scope of the curriculum on the needs of pupils, as indicated in the following areas of living:

(1) Personal living; (2) Immediate personal-social relationships; (3) Social-civic relationships; (4) Economic relationships.

Analyses such as these assist the curriculum maker in gaining orientation as to the scope of the curriculum. If the curriculum is to

meet the needs of young people it must take into consideration important social functions.

The formulation of such categories of learning is motivated by an effort to apply the findings and theories in organismic psychology and cultural anthropology. Those who favor the use of areas of learning believe that the present subject organization does not make it possible to present activities and experiences on a functional basis. One of the problems faced by such classifications is that the categories overlap. On the other hand, the studies of areas of living have done much to bring about reorientation of the curriculum in terms of functional living.

The use that has been made of "areas of living" analyses in curriculum construction is more from the point of view of gaining orientation to kinds of activities which should be set up in the curriculum than in developing a new plan for curriculum organization. The area-of-living technique has influenced the selection and organization of units and has given direction to curriculum thinking. The questions which the curriculum worker asks concerning the use of areas of living are, for example: "Does the division of subject matter and activities into areas parallel the kinds of experiences which children have, or are they based on adult experience?" "Can the broad areas be developed into learning units?" "Is the area-of-living organization meaningful to children?" "Is it possible, through the use of areas of living, to present the well-balanced sampling of life activities?"

In a curriculum organized around areas of living, conventional subject matter is introduced, not in a stated time schedule or program, but as it is needed in the study of aspects of living, or in the solution of a problem.

In a curriculum organized on such a plan, the "skills and drills" would come, for the most part, at the point in which these "skills and drills" contribute to the solution of a problem. On the other hand, such an organization would not preclude a developmental or remedial program based on class, group, or individual needs. Organized subject matter might also very appropriately play a part in a synthesis following a study of a series of related problems. Such a presentation, however, would be for the purpose of orienting pupils to knowledge, facts, and problems, rather than for an isolated presentation. The

general curriculum program organized on this basis in no way precludes the study of a subject such as algebra by those who desire to study an organized field. (See CURRICULUM.)

W.H.B.

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ARGENTINA, EDUCATION IN. Many influences, both foreign and domestic, have left their mark on education in Argentina. The lasting effect of three centuries of Spanish domination as against but a century and a quarter of independent life, for instance, may be largely responsible for centralized government control and the general lack of community initiative in education. On the other hand, French liberalism of the seventeenth century and the more recent influence of the United States have influenced the structure of education, especially on the elementary level, and the cultural and social direction of educational aims.

The government of Argentina is a federation of states and territories each with the right of a good deal of educational autonomy. However, the neglect of the majority of states to assume these rights, due in part to financial inability, has led to greater Federal government initiative and control. As a result, the Federal government has been called upon to administer substantial federal aid in school funds, construction of buildings, foundation of schools, appointment of teachers, and establishment of medical and social welfare aid. Even though there is hardly a school without its association of parents, neighbors, and teachers, community interest in schools is largely lacking in positive social action.

The influence of Domingo Faustino Sarmiento (*q.v.*) was the driving force behind the basic educational law of Argentina (Ley de Educación Común, No. 1420, June 4, 1884). This law established the principle of free, compulsory, lay education, without prejudice to the teaching of religion in the

schools after school hours. This law, in addition, earmarked certain resources and incomes for education. However, since Sarmiento's time governments have carried out this last provision of the law less and less. In fact, there has been a tendency for each political regime to influence education in its own way, a tendency which sometimes militates both against lasting stability and against progress based on sound experimentation.

The three divisions of education—primary, secondary, and higher—are administered separately. In this respect the system differs markedly from that of the United States, in which the primary and secondary schools are generally directed and administered as a unit.

In all three divisions the country spends annually about 330,000,000 pesos, which in the year 1942 represented approximately 20 per cent of public expenditures.

Elementary Education. By virtue of constitutional articles, the educational law of 1884, and subsequent national laws, there exists, along general lines, uniformity throughout the country in a minimum program of principles of elementary school organization, administration, support, etc. Education is compulsory up to the age of 14, co-educational only up to the third grade, free up to the age of 14. Assistance in materials, clothing, food, medical and dental service, is given to the poor children, generally through federally subsidized *Sociedades Cooperadores* (Cooperative Associations) and the *Comisión Nacional de Ayuda Escolar* (National Commission for School Aid). In 1942 there were 723 Cooperative Associations whose aid reached 139,600 children (in 1938, when this work was begun, only 27,759 children received aid). The 1942 budget for food and clothing alone of the National Commission for School Aid was \$5,854,000 (national currency).

Even though the states and territories enjoy educational autonomy, it has been found necessary for the Federal Government, with permission of the states and territories concerned, to offer federal aid beyond the stipulation of the constitution. For instance, in 1905, the Federal government, in order to combat extensive illiteracy, was authorized to establish, direct, and maintain four-grade rural schools to teach reading and writing.

By the end of 1941 there were 4,130 such schools with 14,119 teachers and 457,951 students.

Religious education is permitted in schools only before or after school hours, to be taught by ministers or other persons authorized by the different religions. In general, little use is made of this right as it is not convenient for those interested to teach outside of school hours.

The federal district has pioneered in pre-school education; by 1942 it had established ten kindergartens with an enrollment of 1,139 students.

The elementary school consists of six grades which take seven years because of the division of the first grade into lower and upper grades. In general Argentinian schools are smaller than schools in the United States, even in urban centers. In the Federal District (Buenos Aires) for instance, the average elementary school has 500 students.

The practice of saving in the schools was made compulsory by a national law of 1914. One class each week must be devoted to teaching the concept and advantages of saving.

Federal control of education is distributed among the following: *Consejo Nacional de Educación* (National Council of Education); the *Ministerio de Justicia e Instrucción Pública* (Ministry of Justice and Public Instruction); and, in financial matters, the *Ministerio de Hacienda* (Treasury) and the National Congress.

The agencies exercising local control and administration vary considerably in the several states and territories. In some provinces there are *Consejos Escolares* (School Councils) elected by the people. In the Federal Capital on the other hand the *Consejo Nacional de Educación* appoints 20 *Consejos Escolares de Distrito* for a period of two years. In the ten national territories the *Consejos Escolares* established by law in 1930 have been done away with in favor of various kinds of appointed technical and administrative officials and commissions.

For the training of teachers the establishment of normal schools was begun in 1870 by action of Sarmiento. In 1942 there were 90 official normal schools with 25,707 students. Almost all the teachers in the country have teaching diplomas. Even though there is a high percentage of illiteracy in the coun-

ARGENTINA, EDUCATION IN

try (13.14 per cent among children and youths of school age, 19 per cent among the conscripts by the Army and Navy), and more teachers and schools are needed badly, especially in rural regions, there are more than 20,000 unemployed licensed teachers because of lack of funds to employ them. Teachers enjoy tenure as long as they retain technical ability and good conduct.

The most important medium of educational publicity in the country is the *Monitor de Educación Común* published monthly by the *Consejo Nacional de Educación*.

Secondary Education. Secondary education is carried on in public or incorporated (accredited private) institutions. The public secondary schools are under the exclusive jurisdiction of the *Ministerio de Justicia e Instrucción Pública* and, because there is no basic law (as in the case of elementary education), they are governed by decrees and resolutions of superior authorities. In matters of supervision of teaching, discipline, and administration, the Ministry is assisted by an *Inspección General de Enseñanza Secundaria, Normal y Especial*. For the control of funds there is a *Dirección de Administración*. The *Inspección General* controls directly, through a body of supervisors, all the work of the public institutes and a good part of the work of the incorporated (accredited private) institutions; apart from the function of technical orientation, it has few executive powers, acting more as an advisory board to the Ministry. In addition to the schools mentioned above, there are special schools directly controlled and administered by the Ministries of Agriculture, War, and the Navy.

The Reform of 1942, decreed by the national executive, set forth a new plan of secondary education and a new system of promotion for students. Commercial and industrial education was separated from academic education, and set up under a new plan. For the academic course a cycle of three years of basic courses was made a uniform requirement for the baccalaureate and the elementary school teacher's certificate, to be followed by two years of specialization, a total of five years (an increase of one year above the former requirement). In the basic course, the daily schedule has been made uniform; it is now five hours a day, a total of thirty hours a week; the total number of subjects has been

reduced; of foreign languages there is a choice between English and French; more time is devoted to applied mathematics.

The new system of promotions has as its principal characteristic the annual classification of the student. Examinations at the end of each course have been done away with and replaced by comprehensive examinations at the end of each of the two cycles, basic and specialization. In each subject the student is promoted if he earns a minimum of four points out of a possible ten, and shows satisfactory progress in all his subjects except a maximum of two. The judgment of the teacher prevails in this evaluation of the student's work. This new system gives greater power to the teacher and is intended to make for greater mental discipline on the part of students so that they can pass the examination at the end of each cycle. It is precisely this effect of the system that is criticized by its opponents, who oppose placing too much authority on teacher judgment and too much emphasis on mental discipline.

University Education. There are six universities: Buenos Aires, Córdoba, La Plata, Litoral, Cuyo (in Mendoza), and Tucumán. The first university was Córdoba, created in 1628 by decree of Gregory XV; the newest is that of Cuyo in the city of Mendoza. The government and control of the universities, as a result of the reform movements of 1918 and 1920, depend fundamentally upon the faculties. The faculties, meeting in common assembly, designate delegates to a *Consejo Superior* and elect the Rector for a term of four years. The *Consejos Directivos* of each faculty control educational and disciplinary matters. The *Consejo Superior*, consisting of the deans and delegates of the faculties, has jurisdiction over matters concerning the entire university. For the year 1942 the budget of the six national universities—derived partly from funds of the public treasury and customs taxes in the ratio of approximately 2:1—totals more than 36 million pesos, as follows:

Buenos Aires	14,078,045
Córdoba	5,083,403
Litoral	6,297,744
La Plata	5,971,574
Cuyo	2,638,397
Tucumán	2,208,543
	<hr/>
	36,277,706

The universities fulfill the functions of both professional preparation and research, and scientific investigation. The faculty of Philosophy and Letters of the University of Buenos Aires has organized an institute of investigation whose publications have made notable contributions in the interest of research and public cultural action.

Relations with the United States. Cultural and educational relations with the United States have not been as close as the great opportunities for reciprocal gain seem to indicate. The distance (7,000 miles to New York); cost of traveling; and differences in race, religion, and standards of living (the American dollar is the equivalent of \$4.25 in national currency) have all contributed to this lack of intercultural exchange. However, since the 1930's, more and more efforts have been made to bring the two countries closer together. A congressional law created the *Comisión Nacional de Cultura*, which, in the period 1935-42, sent to the United States for further study 56 winners of scholarships, at a cost of \$8,000 for each one. As for the interchange of teachers and students, Argentina has not yet adhered to the Buenos Aires Agreement of 1936, in which the resolution was adopted that the countries represented (Latin American countries and the United States) should exchange students among each other. Both the Division of Cultural Relations of the United States Department of State (See CULTURAL RELATIONS, DIVISION OF) and the Argentinian diplomatic service are working to facilitate an increase of intercultural relations between the two countries.

Pertinent Statistics

Population (as of 1941):

in the 14 provinces	9,000,000
in the federal district	2,600,000
in the 10 territories	1,000,000

Total 12,600,000

Number of students (as of 1941):

in elementary schools	2,024,954
in secondary schools	199,856
in universities	31,231

Total 2,256,041

B.R.

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ARITHMETIC MEAN—See CENTRAL TENDENCY.

ARITHMETIC, TEACHING OF. Arithmetic commonly is understood as the art of computation, and the application of this art. In the public schools arithmetic is taught, ordinarily through the eighth grade, to provide competence in performing the fundamental operations with numbers as they are required in the life of the community. Frequently, in the upper grades in particular, the concepts and processes of other branches of mathematics such as algebra and geometry enter into the applications of arithmetic. This is true when formulas are used, or when the areas and volumes of geometric figures and solids are to be calculated.

In the high school, the courses in which the processes of arithmetic, algebra, and geometry are used as needed to study the topics which make up the course are commonly designated as *general mathematics*. Some specialized fields of arithmetic have been provided in the secondary schools to develop the special competencies needed for certain vocations, as shop arithmetic and commercial arithmetic. There is a tendency to recognize here, also, that the concepts of algebra and geometry are useful, and these special courses are being referred to increasingly as *mathematics* rather than as *arithmetic*.

History of Arithmetic in America.

It is convenient to consider the development of curriculum and instruction of arithmetic as falling into three periods. The colonial period, up to 1821, has been referred to as the "ciphering-book" period, from the fact that it was characterized by a mechanical copybook method of teaching. The chief function of the teacher was to "set sums," state rules, and examine the pupil's work. Arithmetic was taught because of its practical value in business, and mainly in localities where commerce was important.

During the period of national expansion from 1821 to 1890 arithmetic rose to a place of chief importance in the schools as a result of several forces, including industrial development, a universal faith in formal discipline, and the ideas of Pestalozzi, as interpreted in the writings of Colburn. Teaching procedures, designed to provide motivation and secure understanding, received much at-

tion. Stress was laid upon development of general mental capacity.

In the period since 1890 the methods of science have been adapted to the study of education and psychology. For arithmetic, the most important results of the scientific study of education have come from the measurement movement, surveys of social usages of arithmetic, experimental research in the classroom, and child psychology and the psychology of learning. A growing fund of information from these sources is stimulating the continuing attempt to place the arithmetic curriculum and instruction on a scientific basis.

Aims of Arithmetic Instruction. The basic and dominating aim of arithmetic is to equip the pupil with understanding of the nature and use of the number system in affairs of daily life, and with ability to use quantitative procedures effectively in the achievement of his purposes and those of society. This point of view recognizes two aspects of instruction in arithmetic: the *mathematical* aspect, emphasizing the system and the logic of mathematical processes; and the *social* aspect, stressing the importance of number in modern society. Each of these aspects has, at times, been emphasized to the neglect of the other, as, for example, in discussion of the relative merits of functional and formal mathematics. It is recognized increasingly that both aspects are essential, and that arithmetic must be at the same time mathematically meaningful and socially significant.

Trends in the Curriculum. Trends in the arithmetic curriculum may be seen as the results of the shift of attention from formal discipline to the scientific study of educational problems. Of particular importance are the trends in content and grade placement.

The movement toward elimination of obsolete and useless applications and their replacement by those that are real and important has continued from the beginning of the century. Problem situations are sought in the present experiences of the pupils. In the upper grades, particularly, there is a growing tendency to organize materials around social topics rather than around mathematical processes. There is a trend toward reducing the number of topics in a given year, and toward exploring more thor-

oughly those that are studied.

In grades seven and eight there is an increasing tendency to utilize the fields of geometry and algebra in exploring the topics. The geometry is that of space and form (as contrasted with a study of the nature of proof), including: (a) the basic concepts and terminology, (b) the basic skills and techniques, such as constructions with ruler and compass, and with mechanical drawing instruments, and (c) important geometric facts and relationships that can be discovered experimentally or from observation. The methods of algebra are utilized in expressing relationships in formulas, in evaluating formulas, and in solving very simple equations.

The grade placement of topics has been influenced in an important way by the information on growth of intelligence and the rate of physical and social maturation of pupils that is made available by studies in child psychology. One result has been to establish rather definite limits in the nature of processes that can be learned economically from year to year. These are based primarily on the ability to perform the operation, to understand the situations to which it is applicable, and to deal effectively with the principles involved in the development of the operation. They affect the choice of operations to be used, and the level of reasoning involved.

The result is an interesting reversal of a general trend lasting over a century and a half. A hundred and fifty years ago arithmetic was a college subject. A hundred years ago it was specified as a college entrance requirement. The downward movement continued until only vocational arithmetic was taught in the high school, and in some schools, immediately after World War I, long division was taught in the third grade. Important social applications of arithmetic—investments, taxation, management of family income—were studied at an age when their importance and implications were not recognized by the pupil.

While the resulting reallocation of topics leaves the curriculum in a state of flux, it is clear that there is a general upward revision, and a reaction against the crowding of the entire curriculum in arithmetic into the grades. Courses in general mathematics that are largely arithmetic are being made available to an increasing proportion of high

school pupils, partly to correct mechanical deficiencies and partly to deal with important social topics.

Theories of Learning as They Affect Classroom Procedures. The nature of classroom activities is determined largely by the teacher's concept of the learning process. The point of view that appears to be most influential at the present regards learning as an active, purposeful process, rather than a passive, mechanical one. It considers understanding as more important than repetition. It considers learning as a developmental process, rather than one of fixed, stereotyped responses. It encourages discovery and problem solving, as contrasted with an insistence on an initially correct response. There is, furthermore, an emphasis on the importance of organization, by which learning is facilitated through the recognition of a form or plan. The number system provides a basis for this organization in the relationships in the number system, from which the mathematical operations are developed.

The following instructional procedures, based on this point of view as the nature of learning, are typical:

1. Considerable attention is paid to pupil interests, in order to discover those that may form the basis of significant and important uses of number.

2. Since careful research indicates that abstract ideas of number develop out of many concrete, meaningful experiences, the use of arithmetic in practical situations is increased, along with its study as a system of thought, in order to develop the pupil's ability to think quantitatively.

3. The use of out-of-class activities, laboratory situations, reference material, and other departures from a textbook activity, is increasing.

4. The fact that learning is not compartmentalized, and that along with skills and information other outcomes may be expected in attitudes, interests, and other personality traits, have called attention to the mental hygiene aspects of arithmetic. This in turn demands the use of evaluation procedures suitable for appraising growth in areas other than computational or informational.

5. The insistence of Pestalozzi that understanding precede drill is assuming a new importance. Recent statements of the desir-

able characteristics of repetitive practice include recognition of the purpose and value of the practice by the pupil, provision for self-direction and self-evaluation, and reasonable demands on attention in laying out practice schedules.

6. Diagnostic procedures are utilized to reveal to the pupil the precise nature of his weaknesses, and remedial practice and self-testing materials are provided to correct the computational and problem-solving difficulties as they are identified.

7. In so far as it is feasible in the classroom situation, increasing attention is being given to the needs of individual pupils as they demand individualized procedures and content. More effective practices are made possible through more adequate information not only as to ability to understand and use abstract mathematical principles, but also as to interests, purposes, attitudes, and other personality factors.

Recent Trends in Research. Research studies that are of particular significance have been carried out on problems of grade placement, the social uses of arithmetic, arithmetic in the activity program, and the criteria for effective drill.

It has been noted above that the upward reallocation of topics in arithmetic has indicated the need for accurate information as to the optimum level for each process and each topic. Formally organized research has been conducted in considerable detail for this purpose. The value of recognizing the factors that go to make up *readiness* for a process has been established, and the undesirable effects of mechanical learning prior to understanding have been pointed out. Studies purporting to determine "optimum mental age" for each topic or process, however, are valid only when other factors of readiness are equivalent—for example, experience, interest, and social maturity.

Related to this problem also are the studies that are concerned with the number of experiences of preschool and primary-school children. It is clear that children acquire a significant amount of number experiences before entering school. In many schools, number experiences are started in the first grade, using normal activities of children for the purpose. Some systematization of these experiences is common in the second grade.

Studies of adult uses of arithmetic played an important part in directing curricular revisions in arithmetic in the period since 1910. While providing a fund of information as to the skills and information most widely needed by adults, these studies are, of course, limited by the facts that adults use only the mathematics they have available, that these studies deal with adult needs rather than pupil needs, and that curricula must take into account *mathematical* as well as *social* aspects of mathematics.

The teaching of arithmetic in the activity program is an effort to bring pupil needs to the foreground in classroom activities. A number of studies have been carried on to determine the effectiveness of arithmetic instruction based on units of social experience. These studies are indicative of the valuable contributions that can be made by a well-organized program, provided attention is given to both the mathematical and the social aspects of the field.

Research to determine the criteria for effective drill has been one of the most popular types of research in arithmetic. The importance of many of the studies, however, is diminished by the narrowness of the outcomes measured, processes included, and techniques compared. Newer points of view with regard to optimal circumstances for effective learning have led to increased emphasis on the purpose of the learner, a factor commonly omitted from earlier research studies. Moreover, recent studies have shown an advantage for the discovery of relationships within the number system, as compared with study of the number combinations by repetitive drill. This opens up the whole question as to which areas are suitable for drill procedures, and which can be more economically studied by methods other than specific repetition of each part.

Evaluation of Outcomes. The advent of the measurement movement, which had many of its beginnings in measuring computational skills, focused attention upon the mechanical aspects of arithmetic. The influence on both curriculum and instruction had many unfortunate features which the present point of view in evaluation (*q.v.*) aims to avoid. Comprehensive evaluation requires, first, an adequate statement of outcomes desired from arithmetic instruction. From

these, the most crucial are selected for evaluation. Second, evidence is collected to determine the degree to which these outcomes are being achieved. For this purpose, there are some standard tests available for certain outcomes. Well-prepared informal tests are more commonly available. In addition, for most outcomes, evidence is needed from observation of pupils while they are engaged in their classwork and informal out-of-school activities, supplemented by reports from pupils and parents. (See *BUSINESS ARITHMETIC; MATHEMATICS, TEACHING OF.*) L.B.K.

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ARMED FORCES, TRAINING FOR —See MILITARY EDUCATION.

ARRESTED DEVELOPMENT. A cessation of growth in any one area at some time during development before completion or maturity has been reached. The stoppage will result in physical deformity when occurring during fetal growth and accounts for such structural abnormalities as harelip and cleft palate. Arrested mental development may be caused by certain diseases such as encephalitis when these occur in early childhood. It should be distinguished from mental deficiency (*q.v.*), which is slowness of growth rather than stoppage of growth.

B.B.F.

ART EDUCATION. Art education aims to meet the needs for art appreciation and art production in the unified elementary school, the exploratory junior high school, the differentiated senior high school, the pro-

fessional art school, the teachers college, the college of liberal arts, and the university. Through ministering to human needs, art aims to further democratic living, thus contributing to the realization of the general objectives of education and promoting art as a way of life rather than art-as a cult.

Art is gradually achieving a place in education commensurate with that which it fills in life, largely because of the initiative and leadership of a few progressive school administrators whose philosophy of education is broad and liberal enough to include in their organizations those phases of art that contribute most to individual and social æsthetic growth, as well as those contributing mainly to mental and physical development.

The contribution made by the elementary schools to the total art education program is of paramount importance, since it is here that the educational production and appreciation of art have their beginnings, here that the greatest number of individuals are affected. Unfortunately, art is often taught in the elementary school by a classroom teacher with little or no training in art. Where the elementary schools are organized on a platoon basis, there is, if the school is large enough, a special art teacher. In smaller platoon schools, the teacher's schedule includes a combination of allied subjects. The improvement in art education that comes from having specially trained art teachers in the elementary schools is obvious.

Art instruction in the junior high schools, carried on by a trained art teacher, is exploration and guidance, with emphasis on art appreciation. In the senior high schools, where art is usually an elective subject, special training is provided for those pupils who can profit most from the instruction given. When art is offered in the secondary schools as a major subject in a special curriculum, the subject is intended to represent in a general way the entire art field. In the art curriculum offered in some large senior high schools, provision is made for considerable specialization in a single art field. This curriculum, a four-year sequence of studies with art as the subject of major interest, is planned for boys and girls whose ultimate objective is such an occupation as painter, sculptor, architect, illustrator, occupational therapist, art teacher.

The typical special art curriculum presents

a balanced offering of art experiences. The art courses included are General Art, Painting, Commercial Art, Sculpture, Industrial Art, Theater Art, and Architecture. Although the art subjects must be taken by all who enroll, the students are allowed, in so far as possible, to elect those academic and related subjects that will help them gain admittance to the institutions of higher education they hope to attend. Interested and able students who desire to make art their life work are encouraged to follow the art curriculum. The art curriculum graduate is eligible for both college and art school.

The liberal arts college further familiarizes its students with the art heritage of the race in its relation to the present, enabling them to utilize the æsthetic resources the environment affords. Some liberal arts colleges offer studio or activities courses. Most special art schools make some provision for training art teachers.

Little formal instruction in art should be found necessary at any level of the child's progress through school, although there is an appropriate place for the teacher's skillful guidance, given always at a time in the pupil's development when the help is needed. To facilitate the learning process, experience in school is often divided into parts convenient for assimilation by the pupils. Such a part is generally referred to as a "unit of experience," although "unit of teaching" and "unit of work" are terms also used to refer to the same idea. The teaching unit in art embraces experiences with information and experiences with activity, the information being both general and technical in order to assure a broad cultural background. The activity included is both directed and creative to assure consistent pupil growth in the manipulative phase of the subject.

The following sequential steps are distinguishable in well-planned units of experience in art: (1) orientation, (2) design, (3) forming products, and (4) appreciation. *Orientation* signifies finding one's bearings and getting set for the work anticipated. *Design* implies conceiving and planning, regardless of whether or not a drawing or model is to be made in advance of the actual construction of a product. Design includes decoration. *Forming products* involves the transformation of materials into art form, thus accomplishing

ART EDUCATION

the purposes of design. *Appreciation* involves judgment of the educational results, as well as evaluation of the art products made by the members of the class.

In all his work, the pupil should be allowed to choose the materials that seem to him best fitted to embody his own ideas. If teaching has been effective, there is little danger that the pupil himself will not possess æsthetic judgment sufficient to meet his art needs at any stage of his growth.

Art appreciation refers to the entire process of responding æsthetically to art. Implying sensitive awareness to æsthetic values as well as ability to evaluate art products, art appreciation is both emotional and intellectual. Quality in works of art is determined largely by the design that enters into their formation, as well as by the materials used and the technical processes involved. People differ in their opinion of what is appropriate in design, materials, and processes, and this difference of opinion gives rise to taste. Assuming that one's taste may be improved, art education aims to develop art appreciation in boys and girls by providing experiences that make possible the exercise of discriminative judgment. These experiences need not be isolated art experiences but may be closely associated with other school and life activities.

Although it may, and often does, result from creative experience, art appreciation is not merely for the child with unusual creative ability, but should be nurtured in all; good taste and the preservation of acceptable ideals of beauty are matters of not only individual but also community concern. Appreciation cannot be taught but must be cultivated through continuing contact with an art environment. To appreciate an art fully the child should be acquainted with it both emotionally and intellectually and should be brought to understand its significance in civilization. He should be made acquainted with its evolution (history) and with its masters. He should be enabled to interpret its products by means of sense perception; to differentiate between qualities — distinguishing between poorer and finer grades and making defensible choices; ultimately to employ this power in the selection of products, in their use, and in their combination and arrangement.

The need for adequate direction of art education is urgent, particularly in the elemen-

tary schools where teacher preparation in art is generally in inverse ratio to the demand for art. In any community, large or small, art education is a cooperative enterprise in which the supervisor, the principal, and the teacher should share. It is important that all these educators should have an adequate conception of art as a curriculum area, and of the school procedures applying to art; that all should recognize the validity of the claim of art to adequate time and emphasis in the weekly and daily schedules; and that all should realize that art supervision, whether employed by an art director or supervisor or by a school principal, must concern itself with all these things.

In the small community a single individual may have to teach art and, in addition, do such supervision as time will permit. In the large community, responsibility for administering art education is centered in a director or a supervisor working under the superintendent of schools and his assistants. There is, of course, a wide variety of possibilities between these two extremes.

The criteria for judging the effectiveness of the art education program in a particular educational organization include the following: interest of the head of the institution in promoting art, adequacy of the philosophy underlying the art program, provision for special needs, integration of art and other curriculum area, diversity of integration or the number of curriculum areas involved, educational value of the activities undertaken by the pupils, character and quantity of information experience provided, variety and educational possibilities of the mediums used, balance between two- and three-dimensional art products, evaluation of pupils' work, adequacy of rooms and equipment, and maintenance of rooms and equipment. (See ART SCHOOL.)

L.L.W.

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ART METAL WORK. Professional artists would normally restrict the word "art" to production of superior quality and of original design. Although much of the art metal work done in the schools is not of original design, the emphasis in the better schools is in the direction of fostering original design.

The instruction centers about metal work that has æsthetic as well as utilitarian value. Most instruction in art metal work, as given by secondary schools, is general or cultural in aim. In some schools it is administered by the industrial arts or by the practical arts department. In other schools it is administered as a phase of art education. In others, the instruction is definitely vocational and meets the requirements of the State Plan for Vocational Education. Such metals as copper, brass, aluminum, pewter, stainless steel, and silver are used when available. Iron and steel are also employed.

F.T.S.

ART SCHOOL. The art school is a separately organized educational institution whose purposes generally include (1) the training of artists, (2) the education of consumers of art products, and (3) the preparation of art teachers. The purpose of the art school is to teach the use of art media including the tools and materials of expression, and thus to meet the social, democratic, and practical industrial needs of the modern community. Some typical examples are Pratt Institute, School of Fine and Applied Arts, Brooklyn, N. Y.; Rhode Island School of Design, Providence, R. I.; The Maryland Institute, School of Fine and Practical Arts, Baltimore, Md.; and The Cleveland School of Art, Cleveland, Ohio.

Graduation from a four-year high school is generally required for entrance to the art school, the curriculum of which is usually four years in length. This curriculum gen-

erally places emphasis on one or more of the following fields: the assembling arts, such as display; architecture, exterior, interior and landscape; costume; the graphic arts, such as advertising, illustration, photography and print-making; the handicrafts, such as ceramics, metal working, textiles, paper and wood-working; industrial design; painting, sculpture; and miscellaneous fields, such as lecturing, library work, museum work, teaching and writing.

The art school curriculum includes a general foundation course followed by specialized courses in one or more of the branches enumerated. The foundation course of one or two years' duration includes experience in drawing, design, lettering, color, English, history, and science, and sometimes in other subjects, both studio and academic. Special courses include concentrated work in such fields as painting, sculpture, architecture, graphic arts, textiles and clothing, jewelry and silversmithing, interior design, industrial design, glass and ceramics, illustration, photography, arts of the theater and other important divisions of visual art, and art education. Degrees are often conferred on the graduates in accordance with accepted academic standards. A number of art schools now make it possible for qualified students to continue their training on the graduate level for a period of one or two years. (See ART EDUCATION.)

L.L.W.

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ARTICULATION. Articulation in the educational program is secured when all aspects of the program contribute with maximum effectiveness to the continuous and cumulative growth and development of pupils in desirable directions. Poor articulation is indicated by undesirable repetition, duplication, or omission of subject matter or learning experiences in the total educational program for any one child; by sharp breaks, arrests, or gaps in the child's progression through school; by artificial or unnecessary administrative distinctions among units in the school

ARTICULATION

organization; or by the subjection of pupils to sudden and abrupt changes in curriculum organization, teaching methods, or methods of work.

The problem of articulation is most pronounced in relation to the unification of the curriculum of the various administrative units of the educational system, such as the elementary school, the junior high school, the senior high school, the college, and the university. This is due in part to the separateness of each of these school units in its historical antecedents, with the result that full coordination of purpose and function has not been achieved, and in part to organizational cleavages fostered by administrative practices relating to the salary, training, and assignment of teachers, and to the budget, control, and recognition of the school.

Good articulation results primarily from general agreement of all teachers and administrators in each administrative unit on the fundamental purposes and aims of all education and from an understanding by the staff of each unit of the ways in which it may best contribute to the growth and development of its pupils in line with these basic purposes. It is the desirable growth and development of pupils which provide the unity for the planning of educational experiences, and hence the means by which good articulation is achieved. Each administrative unit should be differentiated in curriculum, instructional procedures, and administrative practices only in terms of the needs and interests of the pupils at the level of maturation encompassed within its student body.

Many administrative measures for securing better articulation have been advocated and practiced. Chief of these is the formulation through cooperative group action of a statement of a basic philosophy of education to which teachers in all schools and at all levels subscribe. Articulation is also facilitated by the elimination of sharp breaks or interruptions in the pupil's progression. Formal graduation exercises and diplomas, as well as formal admission procedures and entrance requirements, are deterrents to good articulation.

One of the aims of the junior high school and the junior college has been to bridge the gap between elementary and secondary and between secondary and higher education. This

aim has been implemented in these institutions by exploratory courses, gradual introduction of new subject matter, and emphasis on individual guidance. However, it is doubted by some educators whether the junior high school and the junior college can achieve this aim. It is pointed out that where there were once but two gaps (between the elementary school and the high school and between the high school and college) there are now four (elementary school-junior high school, junior high school-senior high school, senior high school-junior college, and junior college-college). Moreover, it may be unwise to consider the transition function of these schools as of dominant importance since for so many students these schools do not represent a transition to higher levels, but the termination of schooling.

The use of cumulative records which assemble adequate information about the scholastic, social, and personal characteristics of the pupil, including his test results and health reports, and the transference of these records to each new unit along with the pupil, aid in providing for a continuity of experience, and hence facilitate good articulation. Joint curriculum committees composed of representatives of all educational levels, joint research projects, longitudinal studies of pupils' needs and interests, experiments, surveys, and discussions and conferences involving educators from all levels also promote articulation. A coordinated guidance program is a major factor in promoting articulation.

Within the individual schools themselves articulation is facilitated in general by administrative practices that enable a teacher to work with a given group of pupils a maximum amount of time. Hence in the elementary school good articulation is hindered by extensive departmentalization, quarterly and semi-annual promotions, artificial grouping methods, and the assignment of teachers to work with groups for only a year or a semester.

In the secondary school, extreme emphasis on specialization and on the mastery of logically organized subject matter to the neglect of wholesome, all-round development of youth hinders articulation. Other practices in the secondary school which may be detrimental to good articulation are the use of a rigid unit system of credits, rigid graduation re-

quirements, ability grouping, and the distinctions between academic and the various practical or vocational subjects with respect to credit, acceptability for graduation, and uniform time schedules. G.S.

ARTS AND CRAFTS—See CRAFTS.

ASOCIAL. An *asocial* individual is one who violates the accepted social standards of the home, school and community. The term does not apply generally to confirmed criminals, but rather to delinquents who may come either from impoverished, broken, or otherwise undesirable homes or from financially solvent families.

Every individual has some asocial tendencies but whether or not they become serious depends upon the frequency and persistence of their occurrence, the importance which the person attaches to his conduct, and the type of guidance he receives.

In treating children with asocial tendencies, every effort should be made to ascertain the underlying causes for the behavior, and then to develop appropriate corrective measures. These may include the re-education and adjustment of the child and his family, or his removal from the home or community. In these problems prevention is a most important feature, and parents and teachers should help the child who feels defiant and sullen to regain his self-confidence and self-respect. (See CHILD GUIDANCE CLINIC, EXCEPTIONAL CHILD, JUVENILE DELINQUENTS, LYING, MENTAL HYGIENE, NEGATIVISM, REJECTED CHILD, STEALING, TRUANCY, VANDALISM, and similar items.) R.V.M.

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ASSEMBLY, SCHOOL. The school assembly is a development of the early college and high school chapel—a purely religious service that dates from the time when the college prepared its students almost entirely

for the ministry. With the growth of public and nondenominational education, the assembly lost its predominantly religious character. As educators began to recognize its educational possibilities, the assembly changed emphasis and developed from merely a formal ceremony to one of the most vital and important of all school activities.

The assembly is usually scheduled regularly once a week and at such other times as occasion demands. Its main purposes may be listed as follows: (1) to unify the school, (2) to educate in the common and integrating knowledges, (3) to motivate and enrich classroom work, (4) to broaden and deepen student interests, (5) to inspire worthy use of leisure, (6) to develop the students' æsthetic sense, (7) to instill the commonly desired ideals and virtues, (8) to develop self-expression, (9) to emphasize correct audience habits, (10) to publicly recognize worthwhile achievements, (11) to promote intelligent patriotism, and (12) to correlate school and community interests and achievements.

In order to be most effective, the assembly program should (a) have both educational and inspirational merit, (b) have interesting variety, (c) represent the work of all the school—both curricular and extracurricular, (d) provide for teacher and student participation, (e) stress education of the audience rather than training of the performers, (f) represent worthy standards in materials and presentation, (g) utilize demonstration, exhibition, and dramatization as much as possible, (h) include relatively few outsiders, (i) be closely supervised by competent teachers and committees, and (j) be held in regularly scheduled school periods.

If the assembly is to achieve optimum results it must be carefully planned and supervised. This means that a single individual, or, better still, a committee of teachers or of teachers and students, should be assigned full responsibility. This individual or group educates the school in the purpose of the assembly, surveys the school for suitable material, assigns available dates to a particular group or individual, assists in staging, equipping, and advertising the program, develops standards, keeps scrapbooks or files of programs and program materials, and organizes and promotes interschool pro-

ASSIGNMENTS

gram exchanges. Each of these responsibilities may be assigned to subcommittees.

Good assembly programs should be built on material that is vital and suitable for the group and should be as natural as possible both in material and in presentation. They should possess pleasing variety, offer some opportunity for audience participation, and include a considerable amount of good music.

A great number of devices are now utilized in order to achieve these program objectives—talks, conversations, interviews, demonstrations, exhibits and explanations, dramatizations, debates, competitions, questions for the audience (voting, oral true and false tests, expressions of preference, "What would you do?" questions, etc.), slides, motion pictures, and radio.

H.C.M.

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ASSIGNMENTS. While the term *assignment* is ordinarily used to refer to tasks which the pupils are asked to do outside of class, the best present day interpretation refers to the assignment as a definitely designated activity or set of activities to attain certain learning outcomes that contribute to the development of the classwork, whatever that may be. Thus, while assignments may well consist of such activities as working exercises to develop certain abilities, studying assigned topics to get understandings, or writing stories to develop creative abilities, they may equally well consist of any valuable learning activities that pupils need to engage in independently to attain desired ends. In our public schools it is common practice to make assignments to be done during a part of the class period, often designated the study period, or to make assignments which the pupils are expected to work on at some time before the class meets the next day.

Besides the primary purpose of bringing about certain desired learning activities, the

assignment should fulfill other important purposes. It should (1) provide a stimulating approach to the new work and show its purpose and relation to what is being done in class, (2) establish a motive for engaging in the activity, (3) provide for individual needs and interests, and (4) provide study helps or directions so that the activities can be carried out effectively and economically.

To realize these purposes teachers must plan carefully and use effective techniques. Many teachers make effective use of an introduction or so-called approach before giving the assignment proper. By means of this introduction the teacher sets up objectives, motivates, and orients the pupils. Then the assignment of learning activities for the attainment of the objectives is made, with appropriate provisions for individual needs and interests and needed helps or directions for work.

Several other factors have a bearing upon the effectiveness of assignments. The amount of time and the appropriateness of the time are important. Many assignments are poor because the teacher does not take enough time to fulfill the purposes of an assignment. Also, the assignment should be adapted to the abilities of the learners and to the attainment of the kinds of outcome desired. Some teachers make effective use of the cooperative assignment in which pupils and teachers cooperatively decide what should be done.

For purposes of comparison it is advantageous to classify assignments according to types; for example, creative, practice, remedial, etc. However, no single classification is satisfactory, since their merits must be compared on different bases. On the time basis the daily assignment is the one most commonly used. Such an assignment covers the work for one class period and is usually made by the teacher each day as the work progresses. This type of assignment allows for the adaptation of the work to the needs and progress of the class. Its greatest weakness is the danger of failure on the part of the teacher to unify the work. Because of this weakness, longer-span planning is gaining in favor, and more emphasis is being put upon "long-span" or "unit-assignments." Such assignments are designed to unify the work, thus helping pupils to see their daily work as a part of important phases or aspects of each

course. The term *unit assignment* has been suggested as a term to apply to all long-span assignments, whatever the basis of planning, including such types as the contract plan, the differentiated unit assignment, the project, and the Morrison unit plan. All such long-span assignments, however, need more or less day by day adaptations or supplementary assignments. Ordinarily assignments are group assignments for the class as a whole, but special assignments are given to individual pupils to provide for special needs or interests.

The *differentiated* or *flexible assignment* is a special type of long-span or unit assignment made up of learning exercises of different degrees of difficulty organized usually on different levels corresponding to the grading system used by the school. Such assignments are designed to provide for individual differences in abilities and in interests and to allow pupils to progress according to their abilities. When pupils are encouraged to share their experiences with the rest of the class, the use of differentiated assignments may give the entire class a richer background for discussion than is available when the same assignment has been done by all the students. The use of differentiated assignments does add to the demands on the teacher's time both in the selection and adaptation of assignments to meet the needs of individual students and in the additional time required for evaluating pupil performance on a variety of tasks.

The following criteria have been suggested for the evaluation of assignments:

1. Are the objectives attainable and appropriate to the particular learning situation?
2. Are the learning exercises adapted to the attainment of the objectives?
3. Are the objectives and learning exercises clearly understood by the pupils?
4. Is the assignment adapted to the abilities of the group?
5. Is the length of the assignment adapted to the time available for preparation?
6. Are the past experiences of the pupils made use of in making the assignment?
7. Are desirable means of motivation used in stimulating pupils to engage in the assigned activities?
8. Are adequate references given so as to conserve time and help pupils get at the most important data needed?

9. Are adequate directions for study made so as to assure effective procedures in studying?

10. Is the assignment adapted to individual needs as far as possible under the circumstances?

11. Is the assignment made at a time best adapted to the learning situation and the nature of the assignment?

12. Is the time used in giving the assignment well adapted to the nature of the assignment and the ends sought?

The assignment occupies a more important position in the teaching-learning process than it was accorded a generation ago. At that time it would have seemed odd that anyone should recommend that the assignment be allotted from a fourth to a third of the time spent in a typical high school class. Part of the increased prestige of the assignment arises from the greater emphasis on pupil activity and from the value of the assignment as a means of guiding this activity. Another factor which has made the assignment an important part of the typical class session is the recognition that the assignment is a useful means of improving the students' study habits and their ability to work with a minimum of direct teacher supervision. As the assignment became a recognized part of the lesson rather than a brief enumeration of chores to be done, teachers saw in it a procedure for enriching the scope of the curriculum and for adjusting the curriculum to individual differences in interests and abilities. Despite the attention that is given in some classes to the planning of the assignment, it is nevertheless true that in all too many classes the assignment is still dismissed briefly with a mere announcement by the teacher of the pages to be read, the questions to be answered, and the problems to be solved. T.M.R.

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ASSIMILATION

ASSIMILATION. In general psychology, assimilation refers to the process of receiving new facts or responding to new stimuli in conformity with what has been previously experienced. It describes a phase of perception by which new experiences are so modified in the mind as to take on the character of previous experiences, even though the form of the new may be somewhat different from the old.

In modern educational psychology, the principle of assimilation is recognized as a fundamental principle of learning. Stated in simple terms, it means that learning must proceed from the known to the unknown, that all new knowledge must be interpreted in terms of past experience, that nothing can be learned that cannot be understood and mastered. *Pestalozzi (q.v.)* protested vehemently against teaching generalized ideas to the pupil in the form of meaningless words, the "teaching of the unknown by means of the incomprehensible". *Herbart (q.v.)* took *Pestalozzi's* principle that learning must proceed from the known to the unknown and elaborated it into the doctrine that new knowledge always is assimilated in terms of what the learner already knows. Assimilation, according to *Herbart*, occurs only when the pupil is interested in the new experience, and to be interested the pupil must have something in his mind which will cause him to attend. In order to assimilate, the pupil must be in the proper frame of mind to attend, and must also have a stock of related ideas which will enable him to interpret correctly and respond adequately to the new situation. *Herbart* insisted that only large, connected units of subject matter are able to arouse and keep alive the deep interest of the pupil's mind, and thus bring about complete assimilation of the material.

Herbart's doctrines paved the way for what has been called the most widely accepted innovation in teaching of the last twenty years in American education, the "unit mastery" plan, proposed and popularized by *Henry C. Morrison*. Dissatisfied with the desultory "lesson-learning and recitation" methods of the secondary schools of his day, *Morrison* developed his mastery technique. Instead of the assignment of a few pages of the textbook to be assigned one day and recited upon the next, he advocated the organization of subject

matter into units, and varied the techniques used through several distinct steps, the most important of which was the step of assimilation. His steps were a variation of *Herbart's* five formal steps, and were spread over several days or weeks instead of over a single class period. These steps are (1) *exploration*, consisting of a pretest, a quiz, or an informal discussion, to ascertain the apperceptive mass of related material, to arrive at a suitable starting point for study, to avoid repetition and waste of time and effort; (2) *presentation*, consisting of a short preview or overview by the teacher, to present a "road map" of the territory to be covered, to arouse interest and to establish goals; (3) *assimilation*, consisting of supervised study and discussion, based upon guide sheets or assimilation charts, accompanied by "mastery tests" to check on the extent of assimilation or mastery; (4) *organization*, consisting of the construction of student outlines of the unit, without recourse to notes; (5) *recitation*, consisting of a series of student floor talks to exhibit actual and complete assimilation and mastery of the unit. Most of the more recent textbooks are organized on this concept of assimilation through unit teaching, and the *Morrison* technique has been exceedingly valuable in correcting many of the weaknesses of the old-fashioned recitation methods.

Some educators have objected to the emphasis which has been attached to assimilation in teaching. Their objection does not deny that we learn new material only in terms of what we already know, but it does emphasize the dynamic quality of education today with its emphasis upon the child's needs and interests. Critics see in the stress on assimilation a reminder of the point of view which regarded the child as the passive recipient of teaching. If a new concept has to be taught to children, then the teacher is forced to find something in the child's background to which the new concept can be related. On the other hand, if the child's activities are the beginning point of education and if he learns in order to satisfy a felt need, the assimilative background for the new learning is already there. Thus if the elementary school teacher has to teach the concept of discount in arithmetic simply because that is the next item in the syllabus for the term, his is the very real problem of finding ways of facilitating assimilation. If, however, the children want to know about dis-

counts because they are putting on a play and are comparing the cost of costume materials when bought at department stores with the cost of purchasing from concerns that offer a special discount to schools, the need for understanding is so real that assimilation is not likely to present much of a problem. (See APPERCEPTION.) E.H.W.

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H. C. MORRISON, *The Practice of Teaching in Secondary Schools* (University of Chicago Press, Chicago, 1931).

ASSISTANT TEACHER. The term *assistant teacher* is used in some school systems to designate a beginning teacher or one with relatively little experience, who is assigned to a more experienced and competent teacher in charge of a grade or class. The assistant teacher may be thought of as a helping teacher or as one who carries on certain functions in the classroom. Often the assistant teacher is one who is in training and who is under an extended period of directed teaching under the supervision of the regular teacher in a teacher education institution. (See STUDENT TEACHING.) The term should not be confused with the office assistants or clerks for teachers, whose duties are entirely clerical.

The term assistant teacher is seldom used in the literature and any clear designation of the duties of such a person is difficult because of the local character of the assignments. When the assistant teacher is a qualified person assigned to an experienced teacher, his duties consist of various phases of classroom work,—working with individual pupils, guidance, conferences, playground supervision, etc. W.C.R.

ASSOCIATE LEARNING—See LEARNINGS, SIMULTANEOUS.

ASSOCIATION. The process of *association* is the connecting of ideas or other aspects of behavior in such a way that one may be aroused by the other, and that action appropriate to an absent stimulus is called forth by a present stimulus with which it has been associated in some way in the past. One theory of association can be traced back to Aristotle, who formulated four causes or laws of association: (1) sequence in time, (2) closeness in space, (3) similarity, (4)

contrast. It often has been assumed that these "causes" explained "association" and that the term "association" explained the learning process. Behaviorism (See PSYCHOLOGY, SCHOOLS OF) makes the principle of "contiguity" (closeness in time and space), using Aristotle's first two "laws," the basis for its explanation of learning by "conditioning." The Behaviorists have discarded "similarity" and "contrast" as *subjective* explanations that depend upon the "mental activities" of the learner, while retaining "sequence in time" and "closeness in space," which they regard as *objective* factors having scientific validity.

With the development of physiological psychology, association has often been explained in terms of neurones which would almost automatically set each other off, because, in the past, the stimulus which went along one neurone was repeatedly followed by a response which was conducted along another neurone. A sort of brain pathway bond is said to be established between any two brain centers that are active at the same time. Thus laws of association now become physiological laws instead of laws relating to mental states. Behaviorists and "Connectionists" accept a neural explanation of this type. Gestalt psychologists do not (See PSYCHOLOGY, SCHOOLS OF), neither does Dewey (*q.v.*) who, in addition, discards all four of the Aristotelian principles as explanations. He points out that qualitative thinking determines which associations will be made in situations where learning is occurring: "association is a name for a connection of objects or their elements in the total situation having a qualitative unity"; "thinking is association as far as the latter is controlled." That things become associated because of a relation existing between them, and the fact that learning proceeds through the discovery of relationships rather than through the acquisition of the arbitrary and random associations occurring in time and space is a belief held by Gestalt psychologists as well as by Dewey and other pragmatists. They also point out that a stimulus present now does not necessarily reproduce (in the form of recall or action) the item associated with it in the past. Instead, what is recalled is a function of present purposes. These controversies over the character of "association" constitute warnings against accepting "association" as an explana-

tion of education without further inquiry into the particular kind of "association" cited.

Different teaching procedures follow from the various theories of association and of the relation of association to learning. On the one hand we have the emphasis on getting the learner repeatedly to make a certain response to a certain stimulus if we wish that stimulus finally to call forth that response without prompting on our part, and the stress on getting the learner to repeat together phrases that we wish him to remember together, for example, events and dates, two numbers and their product, etc. From the other point of view, the emphasis is placed upon giving the learner material which is organized and helping him to discover the organization and the relations existing between the various parts, or on letting him confront a problem where he must make such connections between things that will produce a solution.

Association tests. Association has been made the basis for a variety of testing devices. A stimulus word (written or oral) is given and the subject is asked to respond to it in words. Association tests fall into two categories: *Free Association* tests and *Controlled Association* tests. In free association tests used largely in psychoanalysis, the subject is started on some response and is asked to put into words any thoughts that continue to come to mind. No time limit is fixed and the psychoanalyst may, if necessary, prompt or encourage the patient to continue. After one or more such periods, the content of the subject's free associations is analyzed and interpreted as a basis for personality diagnosis. In several tests the stimulus which is used to call forth continuous free association is pictorial. Murray's *Thematic Apperception* test uses pictures portraying some incident, while the Rorschach test (*q.v.*) uses a set of meaningless inkblots, some black and white, some colored. A second method of continuous association is to give the subject a stimulus word and to ask him to speak or write as many words (not phrases or sentences) as occur to him within a fixed time. The Binet Scale includes such a test. Here the number of words given are counted. It is found that the number of words increases with age and that norms (*q.v.*) can be established. The series of words given may also be analyzed for content and sequence. This

is done in personality testing.

In a third method of free association, called "free discrete association," the examiner gives the subject a series of words to each of which the person is asked to respond with the first word that comes to his mind. In this single-word response method the time elapsing between each stimulus word and the giving of the response is often measured. Words which show a variation from the average time which the subject takes to reply are analyzed. Words that the examiner believes may be significant in relation to the person's emotional difficulties may be inserted in these lists and particular attention paid to the responses given, as well as to the time taken. Records may also be made of the psychogalvanic response reaction which occurs together with the hearing of the stimulus word and the giving of the response. Such techniques are used by psychiatrists to uncover some complex which they believe the patient may have and they have also been used as a "lic-detector."

There are several single word free association tests that have been standardized. One of the best known is the Kent-Rosanoff Single Word Response List. For standardization, the test was given to thousands of persons and the frequencies of the various responses given to each word were listed. The high frequency words are designated as *common* responses, the low frequency words as *atypical* or *individual* responses. Kent and Rosanoff found that normal persons, on the average, gave a larger proportion of common responses than did the insane. The overlap, however, is so great that these idiosyncrasy scores cannot be used to diagnose insanity.

Controlled association tests limit the subject's response in one of two ways. For the measurement of intellectual ability, the type of association to be made is specified. He may for instance be asked to give the opposite of such words as: *yes, summer, white, above*. Other relationships such as part-whole, genus-species, etc., may be called for. Scoring is done in terms of the correctness of the response.

The controlled association tests used for personality measurement present the subject with the stimulus word and the alternatives from which he must select his association. The significance of the selection is determined on the basis of similarity of response as com-

pared with the majority of certain criterion groups on whom the test has been standardized and who represent normal individuals, and also individuals who are atypical with respect to the personality trait which is being measured, or who represent groups having different interests, or who have traits at opposite ends of a polar scale. Such tests have been devised for the measurement of interests, of masculinity-femininity, of sanity, courtesy, honesty, etc. Some are considered to be much more valid than others but the majority are sufficiently doubtful to be of little practical use.

W.F.B. and B.B.F.

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ASSOCIATIVE DESCRIPTIVE STUDIES (RESEARCH)—See RESEARCH METHODS IN EDUCATION.

ASTIGMATISM—See VISION.

ASTRONOMY—See SCIENCE, TEACHING OF.

ATHLETICS. The term *athletics* is used to denote exercises, games, and sports requiring endurance, strength, skill, and agility. School and college athletics fall into two distinct categories: intramural, and interschool or intercollegiate. *Intramural* athletics, as the name implies, are confined to competition between teams made up within the individual school or college. *Interscholastic* or *intercollegiate* athletics include competition between schools or colleges by representative teams.

In general the athletic program in elementary schools and junior high schools is confined to the intramural phase. Such a program offers the benefits of competition without the attendant evils that often result when school championships are at stake. Senior high schools, colleges, and universities promote both an intramural and an interschool program. Most institutions, whether they be high schools or colleges, now seek

to maintain a sane balance between the two. American tradition has long upheld interscholastic and intercollegiate athletics. Educators have succeeded in removing much of the stigma once attached to them by wise enforcement of eligibility rules and by eliminating many of the vicious practices that once existed. The extension of the intramural program, offering as it does opportunities to the entire student body to participate, has done much to allay the criticism that interscholastic and intercollegiate athletics were only for the chosen few. Strangely enough, one of the evils of intercollegiate athletics consistently pointed out in the past—that of big business and commercialism—has resulted in the development of huge intramural activities buildings and extensive athletic fields for the promotion of athletics for the entire student body.

This extension of facilities has worked for the benefit of girls as well as boys. Athletics for girls is now accepted universally as a valuable intramural activity. Girls indulge in very little interschool or intercollegiate competition and where such competition does exist it is confined largely to the informal type in which the social values are emphasized equally with the physical. In general girls' athletics has been more progressive in realizing these values and other educational implications than has boys'. This is doubtless due to the fact that boys' athletics, because of its popular appeal and newspaper publicity, has been subject to greater outside pressure without an offsetting control by school authorities. Communities were so frequently intent on a winning school team that the coach, knowing that his livelihood depended on winning a certain percentage of games, had little time for anything but emphasis on championships. As this pressure has been relieved and as coaches have assumed the positions of teachers and professors of health and physical education, the educational implications of the program have been given more consideration.

The values of a well-balanced program of intramural and interscholastic athletics are both biologic and social. If the program is wisely administered, participants should improve in organic vigor, neuro-muscular skill, and general health. They should learn to think quickly and to act with judgment and

decision. They should develop those attributes that are synonymous with good sportsmanship such as courtesy, self-control, and fair play. To be sure, the extent to which the improvement in these traits and abilities will transfer to other phases of the student's life and become lasting personality characteristics depends on many factors, many of them beyond the school's control.

On the other hand, if too much emphasis is placed on championships, proselyting is encouraged, payment of athletes is condoned, eligibility rules are ignored, professional coaches are hired, and the physical welfare of those not able to make the varsity team is disregarded. Under these conditions athletics has no place in an educational institution. It assumes professional characteristics and had better be left in the hands of professional promoters. Schools and colleges which weigh the values and evils inherent in athletics and evaluate their programs in terms of educational worth have little difficulty in organizing these on a sound basis. V.S.B.

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ATTAINMENT AGE—See EDUCATIONAL AGE.

ATTENDANCE OF PUPILS. The term attendance as used in education refers to the presence of pupils in school. The terminology of child accounting has undergone many changes since the National Education Association began work on the problem in 1871. Although it is not yet uniform in the various states, sufficient uniformity has been attained to provide a basis for comparison and for securing national statistics on pupil attendance.

Membership. A child is a member of the school from the time he enters until he is transferred to another school, removed by death, or withdrawn from school for any reason. Membership is usually computed as total registration plus transfers minus withdrawals.

A day of attendance. A day of attendance is variously defined as the child's presence in school for any part of the day to a full day's attendance. Counting attendance by

half days is fairly common practice, in which case a half-day's attendance requires the pupil to be present in school for one-half or more of one of two daily sessions.

Aggregate days attended. The aggregate days attended is an important school statistic because it is the basis upon which other data are computed. It is obtained by counting the number of days each pupil attended school and then adding these numbers.

Per cent of attendance. The per cent of attendance is the aggregate days attended divided by the aggregate days enrolled. The aggregate days enrolled is the number of days of possible school attendance from the time a pupil's name is entered on the roll until it is officially withdrawn.

Average daily attendance. The average daily attendance is the aggregate days attended by all pupils divided by the number of days of school. This term is losing some of its importance as the terms *aggregate attendance* and *aggregate enrollment* are becoming more accepted.

Attendance worker. The enforcement of compulsory attendance laws is the responsibility of various attendance officers. The older type of attendance officer was usually a sheriff, one of his deputies, or some other police officer. His chief qualification was a knowledge of the law, and he regarded his duty as one of law enforcement. The older type of attendance worker has now largely given way to a newer type who is a trained social case worker, a school psychologist or psychiatrist, a school nurse, or a school counsellor. His qualifications are such as to fit him to deal with the social problems which are inherent in non-attendance. It is distinctly work in guidance and counselling rather than in law enforcement. (See JUVENILE DELINQUENTS; SOCIAL SERVICE ACTIVITIES IN SCHOOLS.)

Amount of attendance: Since 1870 the increase of school enrollment has been more rapid than the growth in population. This is in part due to the enrollment of an increased proportion of the children of school age. The proportion of children enrolled who were in daily attendance has increased from 59.3 per cent in 1870 to 85.8 per cent in 1938. Table I shows the total population, the school enrollment, and school attendance, by decades from 1870 to 1938.

TABLE I
Population, Enrollment, and Attendance, 1870-1938
(In thousands)

Year	Total Population	Pupils Enrolled	Average Daily Attendance	Per Cent Attending per day
1870	38,588	6,871	4,077	59.3
1880	50,155	9,867	6,144	62.3
1890	62,622	12,722	8,153	64.1
1900	75,602	15,503	10,632	68.6
1910	91,972	17,813	12,827	72.1
1920	105,710	21,578	16,150	74.8
1930	122,775	25,678	21,264	82.8
1938	130,215	26,975	22,298	85.8

(See COMPULSORY ATTENDANCE.) W.C.R.

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ATTENDANCE OFFICER—See COMPULSORY ATTENDANCE; SOCIAL SERVICE ACTIVITIES IN SCHOOLS; TRUANCY.

ATTENTION. As popularly used, *attention* often connotes a supposed mental faculty or power by which one's field of experience can be restricted "at will." Thus, we speak of "directing," "paying," or "concentrating" attention. For experimental psychologists, however, the term refers not to a faculty or power, but to a descriptive aspect of either consciousness or behavior.

Earlier writers on attention regarded consciousness as the chief object of psychological study, and accordingly they commonly defined attention in subjective terms. Two such definitions have been frequent: (1) For structuralists (e.g., Titchener and his school), attention refers to the fact that the contents of any state of consciousness are experienced with at least two, and possibly more, different degrees of attributive clearness or vividness, often called "attensity." In attention, certain items of consciousness (those attended to—e.g., the words perused at the moment) stand out most clearly as focus or foreground, while other items (e.g., surrounding printed

matter) are less vividly experienced as margin or background. For structuralists, attention is simply this patterning of consciousness arising essentially from one or more differences in the clearness of its central and peripheral contents. (2) For functionalists, however, (Angell and others) analysis of the structure of consciousness is secondary to a study of the role of mental processes in the organism's adaptation to its environment. Accordingly, these writers frequently use the term attention to refer not to the arrangement of conscious content, but to the conscious process of selecting,—the process of focusing certain features of an experience so that they become clearer and more vivid. (See *PSYCHOLOGY, SCHOOLS OF*.)

In contemporary discussions of attention, the older definitions in terms of introspective experience are still often used. On the other hand, many psychologists have come to prefer a behavioristic definition of this as well as of other psychological concepts. From this latter approach, attention is a collective term for the behavioral processes that facilitate an individual's response to a given stimulus or stimuli (the "objects" of attention) and simultaneously inhibit his response to other stimuli. In other words, attending is used as a name for the adjustments (sometimes collectively termed "set" or "posture") giving behavior its selective and focalized character in a given situation. Although the physiological bases of these processes are yet to be fully described, the adjustments in question are often overtly observable even in everyday experience. Prominent among them are motor adjustments of the sense organs (e.g., an attentive batter's fixation and visual pursuit of the oncoming ball), other more widespread postural responses (e.g., his stance in readiness to strike), and respiratory changes (e.g., his shallower but more rapid breathing).

Inattention. Since we are attending to something most of our waking time, to say that a person is inattentive is really a shortened way of saying that he is not attending to the object which we wish him to be directed toward. At one time inattention was treated by parents and teachers as a behavior problem, to be overcome by exhortations to pay attention and by threatened or actual punishment. This manner of dealing with the problem rested upon the belief that "paying at-

ATTENTION

tion" was an ability that children could turn on and off at will and that therefore the child's "will" was *the* factor in the situation which needed changing. This belief has given way very largely in theory but, as yet, to a lesser extent in practice, to the conception that the degree of attention actually given is closely related to the importance which the subject places upon the details of that which is presented to him, and upon his ability to understand and grasp those details. Newer educational practices therefore consider inattention as a curricular, rather than a behavior, problem, and seek to gain the maximum of attention by allowing pupils to pursue studies of interest to them which are at the same time neither below nor above their intellectual level. It is believed that reward and punishment may bring the outward aspects of attending but will fail to bring the awareness and insight into relationships in the material to be mastered which genuine attention often creates.

Attention is therefore no longer measured by the posture of the pupil and the concentration of his eyes upon the speaker, the book, or the chart, but by such more active responses on the part of the learner as making connections with his own past experience and with other in-school and out-of-school activities, by puzzlement when a new fact does not seem to fit in with previously acquired learnings, and by readiness to continue working on a problem even when the class period is over.

In those schools in which the kind of attention demanded was of the passive variety, it was often concluded that the *attention span* of young children is extremely short and that therefore different lessons must follow each other in rapid succession lest inattention be the result. Many lessons in the first grade were planned for no more than ten or fifteen minutes at a time. While it is true that the attention span increases with age, it is also true that at any one age attention span varies greatly with the complexity of the task and the interest which it holds for the learner. Even kindergarten children, when engaged in an activity of their own choosing, can often be seen to participate in it for an hour or more at a time.

Teachers have often asked what features in instructional material will maintain attention on the part of the majority of their

students. There are few such features that can be isolated aside from the two already mentioned—the degree to which the material seems important to the student and the degree to which he can understand it. There is evidence, also, that variety and good organization are favorable for holding attention. However, mere variety which does not form part of an organized whole may bring superficial attention to one thing after another without the active connection-making that is described in a previous paragraph as being the sign of attention. Also, with regard to organized material, certain types of organization may lead to easy distraction. When facts are logically organized into formal series (so frequent in geography, for instance, where the rivers of the country are named in order of size, then the cities, then the industries with their products, etc.) each fact takes on the aspect of a separate item disconnected from the next. Each of these disconnections forms a breaking point where attention is easily diverted in another direction. On the other hand, where the material has more weblike interrelations, there may be an "unfinished" feeling on the part of the learner until he has dealt with it up to a certain point. Experiments suggest that there is a tendency to keep in mind and to resume tasks which have not been completed. The complexity of the interrelationships should, of course, be suited to the intellectual level of the student. Too much interrelationship may be as harmful to the holding of attention as too little.

Since inattention may be a result of fatigue as well as of lack of interest, schools are concerning themselves with the health of their pupils, with the full daily schedule of their lives, and with the physical environment in which the learning is done. Observation and investigation have also shown that inattention may be the result of the pupil's present concern with some matter other than that which is before him to be learned. Preoccupation with personal worries and fears not at all related to the classroom situation cannot be dropped by the child just because it is now time for history or arithmetic. In such instances, the treatment for inattention is an adjustment of the social and personality difficulties which are bothering the learner. (See *MENTAL HYGIENE*.) B.B.F. and B.B.M.

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ATTITUDE. The term *attitude* has not been and probably cannot be distinguished clearly from such terms as *trait* (*q.v.*), *opinion*, *disposition*, *interest*, *value*, and *temperament* (*q.v.*). Most often it is used to describe an emotional reaction, either favorable or unfavorable, toward some object or class of objects, material or conceptual in nature. Attitudes are commonly assumed to direct behavior where it is expressed in appreciations, preferences, or values. A certain attitude toward a particular race represents the person's general disposition to act, speak, or think when confronted by actual situations involving that race. Since any one situation usually involves more than one attitude, with some reinforcing each other and others conflicting, the resultant behavior can rarely if ever be attributed to a single attitude.

Interest in the effect of education on attitudes and of attitudes on learning has led to numerous devices for their measurement. As yet, attitude-measuring instruments are largely verbal. They depend upon the person's own statement of how he feels, what he likes, what he does not like, and what he would do in a given set of circumstances. A large number of attitude scales have been patterned after the Thurstone method, which presents the subject with a list of statements of varying degrees of favorableness-unfavorableness toward the attitude-object (war, communism, temperance, the church, etc.). The subject checks those with which he agrees. Since each statement has already been assigned a scale value derived from the average degree of favorableness which a group of judges thought it showed toward the attitude-object, it is simple to compute an individual's score as the average of the statements he has checked. Examples of attitude-test items are: "War can never be eliminated from the world"; "War tests a nation's real worth"; "I would never go to war under any circumstances." Multiple-choice questions listing different possibilities of action are another method commonly used. Each choice is meant to be indicative of a certain type of value, e.g.: "If I had a million dollars to donate to a worthy cause I would (1) found

a home for orphans (social), (2) build a church (religious), (3) subsidize scholarly research (scientific or theoretical)." In this test, too, individual numerical scores may be obtained.

The best known device for measuring group opinion is the Gallup Poll of Public Opinion. Here a sample of the population is asked to give a "yes," "no," or "don't know" response to some current controversial question. The responses given in each category are added, turned into percentages, and quoted as attitudes representing the population at large. In certain instances the same question has been repeated from time to time and changes in attitude have thus been measured.

Group methods are also used to measure the attractiveness of various subjects of the curriculum, various books, and various teaching devices. Asking students to rank subjects, books, etc., in order of preference is as popular a device as asking them to respond in terms of their liking and dislike of specified subjects, books, etc.

Numerous studies have shown that there is some relation between verbal attitude and behavior, though this differs with different persons. Studies have also shown that verbal attitudes can be changed deliberately by teaching. Movies, stories, discussions, and excursions have produced some effect in the direction intended, although not with every student. It has also been found that in the cases of deep-seated attitudes, though verbal attitudes change, behavior remains substantially the same. The school therefore has become deeply interested in the origin of attitudes so that unfavorable attitudes may be prevented from arising. It has been found that attitudes are so much the result of the mores, especially the mores surrounding the individual when he is young, that adult education is a necessary concomitant to the attitude-training of children. The successful building of desired attitudes and loyalties in the young through having them permeate every phase of the culture is exemplified not only in the Fascist countries but also in the race discrimination of the American South. The Fascist countries also have taught us not to underrate the influence of verbal propaganda on attitudes. That the same verbal propaganda may have opposite effects on different

persons is itself an indication that one's present attitudes determine the manner in which one assimilates new influences.

That attitudes toward learning and scholarship will have an effect on learning is obvious. Interest in, and the prestige value of, different subjects also influence achievement in those subjects. Attitudes of conservatism, of race prejudice, of internationalism, to name only a few, may have a qualitative effect on what is learned. During the last decade it has come to be accepted that the attitudinal frame of reference conditions not only the subjects to which the learner will pay more attention, but also the kind of relations seen in, and deductions made from, the factual material at hand.

W.D.C. and B.B.F.

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ATTITUDE THERAPY—See PSYCHOTHERAPY.

ATYPICAL CHILD. The term *atypical child* has been used to refer to the child who is different from most children. It is difficult, however, to describe a child as an atypical child, for a child is rarely atypical in all his characteristics. Rather than refer to him as an atypical child, it is better to describe him as a child who is atypical in intelligence, or in honesty, or in school achievement, etc.

The word *atypical* often conveys an unwarranted unpleasant connotation. All that it should imply is a deviation from the average; a brilliant youngster is as atypical as a dull one. Investigations have revealed that with regard to the majority of measurable characteristics — height, intelligence, school achievement, honesty, emotional adjustment, etc.—human beings differ from each other in such a way that their scores or measurements on these characteristics distribute themselves approximately according to the normal probability curve (*q.v.*). This means that most scores are clustered about the mean and that the farther a score is from the mean the

fewer will be the number of persons who have the trait to the degree represented by that score. For any one trait that is distributed according to the normal probability curve, the scores in that trait of about 68 per cent of the population should lie within the limits set by a point one standard deviation above the mean and one standard deviation below the mean. This is usually regarded as the range of normality and any person who has a score within that range is regarded as normal or typical with respect to that trait. Beyond these points in either direction, atypicality begins. There are therefore both positive and negative atypicalities and varying degrees of each. (See EXCEPTIONAL CHILD.) B.B.F.

AUDIO-VISUAL AIDS. Audio-Visual Aids are those which assist the pupil to gain correct concepts through visual and auditory presentation of concrete learning material. Recent technological advances such as the sound motion picture, the radio, and improved projection apparatus have made available to the schools the means for realistic perceptual learning. The fundamental ideas behind the use of audio-visual material is, however, as old as the earliest drawings of the cave man or a demonstration of how to club little, wooly horses. Over-enthusiasm on the part of some who sponsored the use of visual presentations caused the term *Visual Education* to be applied to the use of this material. As a result, there was created the false impression that this was a special kind of education, apart from and superior to the other forms of education. Other enthusiasts have applied the term *Sensory Aids* to include the valuable exercises of touch, taste, and smell. A growing number of teachers are using the term Audio-Visual Aids to mean the use of pictures, records, radio and the like as an adjunct to other school experiences and as true "aids" to learning. In this sense the term is used broadly enough to include other sensory experiences which may add to the concreteness of the learning situation.

Among the aids which are now available are pictures, graphs, cartoons, maps, blackboards, bulletin boards, charts, dramatics, models, specimens, posters, motion pictures, film strips, stereographs, slides (including the increasingly popular 2x2 inch slides in color), and field trips. The usual equipment

AUDIT, SCHOOL — AUDITORY AIDS

for the preservation and presentation of such materials includes a picture file, usually ledger size; an *Opaque Projector*, sometimes called a *balopticon* or *reflectoscope* which projects any picture from a book, magazine, or other source; a *Film Strip Projector* which is used for showing a series of still pictures printed on a positive strip of 35mm film; a *Stereoscope* which is a viewing instrument with two pairs of lenses through which photographs taken in pairs from slightly different angles appear to have depth; a *Motion Picture Projector*, usually in the 16mm size since most educational films are available in this size, and preferably a sound machine since both sound and silent films can be shown on a sound projector. Some schools will have a *Microprojector* for projecting enlarged images of specimens, microscopic slides, and the like. Among the more common auditory aids are the sound motion picture projector; the playback machine or phonograph, the former being increasingly made in the dual speed model which plays both the regular phonograph record at 78 RPM (Revolutions per minute), and specially prepared records (16 inch) which play at the rate of $33\frac{1}{3}$ RPM, and on one side of which a 15-minute program may be obtained; recording apparatus for making records of student voices, or recording speeches and other radio presentations; finally most schools are now equipped with radio receiving sets.

Fairly satisfactory methods have been developed in the utilization of auditory and visual aids but much experimentation needs to be done in this area. The recommended methods include careful selection of materials, a preview or preliminary examination of the material prior to class presentation, and the proper placement of the material in the lesson with adequate preparation and follow-up. Properly used, auditory and visual aids should stimulate discussion, exploration, and creative effort. (See such articles as **AUDITORY AIDS**; **DRAMATICS**; **JOURNEY, SCHOOL**; **MOTION PICTURES IN EDUCATION**; **RADIO EDUCATION**.) W.H.H.

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AUDIT, SCHOOL—See **FINANCE, SCHOOL**.

AUDITORIUM EXERCISES—See **ASSEMBLY, SCHOOL**.

AUDITORY AIDS. The principal auditory aids in use in schools today are radios. (See **RADIO IN EDUCATION**), phonographs, recorders, sound motion pictures (See **AUDIO-VISUAL AIDS**), public address systems, and central sound systems.

The phonograph is a comparatively inexpensive piece of equipment which may be used in connection with a large variety of subjects. A recent catalogue of recordings (J. ROBERT MILES, *Recordings For School Use*, World Book Co., New York, 1942) lists hundreds of available records. The modern recording comes in two sizes: the regular phonograph record which plays at 78 revolution per minute (RPM) and the transcription which plays at $33\frac{1}{3}$ RPM. Phonograph records may be obtained in six, eight, ten, and twelve inches in diameter, but most commercial transcriptions are sixteen inches in diameter. A sixteen inch, $33\frac{1}{3}$ RPM transcription offers a thirty-minute program, fifteen minutes on each side of the record. Transcriptions offer the additional advantage of more perfect reproduction of sound than do the phonograph records. According to a recent survey made by the U. S. Office of Education the number of record players operating at $33\frac{1}{3}$ RPM is rapidly increasing in the high schools of the United States. It would seem, therefore, that the best equipment for the playing of records in schools would be a dual-speed machine capable of reproducing records at 78 RPM or $33\frac{1}{3}$ RPM. Several such machines are now on the market.

Methods of using records in the classroom correspond very closely to those used with the radio. The record possesses the advantage, however, of being readily available. The teacher can listen to it, prepare a plan for its use, and gather supplementary materials to augment the information contained on the record. It can be introduced into the program at the time when the pupils feel the

need for such material, and it can be repeated either for the entire class or for individual or small group listening. To assist teachers in the use of recordings the American Council on Education has set up a Recordings Division, New York University Film Library, Washington Square, New York, N. Y.

If the school is equipped with a recording machine it may make many of its own records. Speeches may be transcribed from radio broadcasts; student plays and music presentations may be recorded; voices may be recorded for speech improvement; and many other uses will occur to the educator.

The sound amplification system or public address system is being installed in many schools. The portable unit which may be used in the auditorium, from one classroom to another, or on the athletic field and playground, is favored by many schoolmen. Many sound motion picture machines possess microphone jacks and may be used as public address systems. In addition central-sound systems are now being installed as standard equipment in new schools. Notices, announcements, choral music, plays, and other programs may be broadcast over these systems. The centralized-sound system constitutes a local broadcasting unit and, properly used, may be an important adjunct to the school's auditory aids.

W.H.H.

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AUSTRALIA AND NEW ZEALAND, EDUCATION IN. Education in Australia and New Zealand, like most of the cultural phenomena in the two South Pacific democracies, has the marks of recent construction. There are few hallowed institutions or shackling traditions in the Antipodes, and where they exist they have been imported from England rather than grown on the spot. This is not because the Australians and New Zealanders have ever lacked education, but because of the fact that until a little over a hundred years ago the area was almost completely uninhabited.

Systematic English settlement of Australia began in the early years of the nineteenth century, and the first landings of settlers in New Zealand took place in 1840. The settlers were highly selected. They had undertaken a longer journey than had any other group of migrants, seeking economic opportunity, individual freedom, and political democracy. Education played an important part in all of their schemes to establish a new society which would retain only the best features of the English society they had left. The settlement of Australia and New Zealand was contemporary in time and similar in character to the peopling of the western United States. Attitudes of frontier individualism appeared, though not to the same extent as in the North American West. One important difference existed: Australasian settlers had come directly from England, many with urban industrial experience. From the beginning their plans included the establishment of substantial cities, and they took more kindly to order and regulation. In both countries the coastal areas are highly productive and the interior relatively barren, resulting in an urban concentration of population. In 1940 almost half of Australia's 7,069,000 persons were found to be living in the six state capitals, which are coastal ports. New Zealand, twelve hundred miles east of the continent, has a similar concentration in its four largest cities.

The early schools began, as in the United States, under a variety of local bodies and church organizations. Instead of awaiting the slow evolution of local systems, the Australasians made a radical departure—education was centralized under national and state governments.

The state system, dating from the adoption of free, compulsory, and secular education about 1875 in both countries, brought the speedy and uniform extension of schools in the cities and in "backblocks" or agricultural frontiers of Australia and New Zealand. Teachers' organizations played a part in some of the steps toward centralization. These organizations are variously known in the six Australian states and New Zealand as Unions, Federations, or Institutes, and they are strong everywhere. The proportion of men in the teaching force is high compared with the United States, as high as 56 per cent in some of the Australian states. Ad-

AUSTRALIA AND NEW ZEALAND

ministration by the central government was favored by the teachers' associations, since it removed the vagaries of local politics from the field of education, stabilized salaries, and facilitated promotion by permitting freedom of movement from one locality to another within a uniform nationwide system.

Attendance at a public school or at one of the few approved private schools is compulsory from the age of six, but most pupils enter at five years of age. The school year is long, approximately 41 weeks, and the mild climate permits a high average attendance. Although compulsion ceases at 14 years, 50 per cent of the children continue in high school. The primary school with two or more "primers" or preparatory classes, and six "standards" is comparable in organization to the American elementary school of eight grades, but it is not normally articulated with a high school. The abrupt transition from primary to secondary school is made at the age of thirteen years. Coeducation is universal in the elementary schools and is common in the high schools, though there has been a tendency in Australia in the recent past toward separate boys' and girls' high schools.

The high schools are noteworthy for their isolation from the elementary school system and their emphasis on thorough academic training. Languages are given a more prominent place in the curriculum than seems justified by the infrequent contacts with Europe, and pure mathematics has a central position. Many of the older high schools have emulated the English public schools, with boarding establishments for students comparable to the dormitories of American private colleges. School uniforms for both boys and girls and academic gowns for the faculty are general in the high schools.

A separate corps of inspectors, often recruited from the elementary school inspection force, carries out administrative decisions of the central department relating to high schools. As in the lower schools, the inspector's annual report on each teacher is the basis for promotion. The stimulation of new ideas and teaching practices is also a designated task of the inspector, but the work of assigning grading points to all teachers in a large territory limits him mainly to measuring the teachers' skills by testing the students. This system has led to uniformity among

schools in curriculum matters and a high level of achievement in subjects that are adapted to testing.

The agricultural, technical, and teacher-training institutions are well developed in Australia and New Zealand. The organization of agricultural and technical high schools parallels that of the nontechnical institutions, and in New Zealand the two agricultural colleges are part of the university system. The teacher training colleges are supported entirely by government funds, and in New Zealand the students are paid the salary of beginning teachers during their two years of attendance at the training college. In addition they are given special tuition scholarships at the university and a release from training college classes that conflict with classes in the other institution, so that they can complete the work for a degree and a teaching license at the same time. These advantages for teachers in training create competition for admission, and cause a channeling of the highest talent into the teaching profession.

The college and university systems of Australia and New Zealand follow the English rather than the American or European patterns. In New Zealand a considerable part of the government contribution comes to the university colleges by way of "bursaries" or tuition scholarships provided for all students who have a good scholastic record. In this way the government ensures free college and university education for the talented, regardless of their ability to pay. The courses offered in the university colleges are relatively few in number, the work in each course more intensive, and the units of study longer than in the corresponding American institutions. The students at admission and at graduation are older. There are fewer disciplinary restraints; the elected officers of the students' associations wield considerable influence in their negotiations with the faculties or "professorial boards," which have the functions usually assumed in America by college presidents. Annual written examinations, generally external, dominate the colleges at every stage. Students who fail in these examinations can, and commonly do, remain freshmen for administrative purposes throughout a career of several years.

Most of the important differences between education in Australasia and in the United States are due not to any difference of subject

matter or methods, but rather to centralization and the greater equality of opportunity associated with the even distribution of incomes in Australasia. The graduate from Australia or New Zealand has been offered less variety in his educational fare, but he has studied with more intensity in his narrower range of subjects. He has been submitted to more external examinations, and he has emerged with all the advantages and handicaps of a system that has uniformity and thoroughness as ultimate goals. In the past five years important movements seeking a reorientation have gained momentum with the developing popular enthusiasm, inspired by English and American examples, for "new education." The Educational Research Councils, starting with grants from the Carnegie Corporation of New York, have provided the means of expression through publications of high quality and permanent value. In essence these movements are a revolt against bureaucratic narrowness and formalism, and the direction of the reorientation is toward diversified flexible curriculum, better school-community relations, and the new education. If these qualities can be imparted to the efficient and democratic systems of Australia and New Zealand, the two countries will lead in the field of education as they did in social security legislation.

D.R.J.

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AUTHORITARIANISM. The determination of a point of view by outside forces, such as custom and a revered person or institution, is known as authoritarianism. For instance, some educators hold that subject matter that has lasted a long time or has been recommended by church leaders or school administrators as constituting the fundamentals should be required of all pupils. Similarly others, believing that reality, or truth, exists outside the learner, would prescribe courses in a particular form, which the learner would be expected merely to mirror, or reflect. Indeed any gap that educators create between the child and the curriculum is an expression

of authoritarianism. The tendency of modern public education is in the opposite direction: toward affording the pupil practice in creating, evaluating, choosing, planning, and acting intelligently. (See also AIMS OF EDUCATION and such items as ACTIVITY PROGRAM, CURRICULUM, DEMOCRACY AND EDUCATION, DISCIPLINE, PROGRESSIVE EDUCATION.)

W.A.S.

AUTONOMIC NERVOUS SYSTEM—

See NERVOUS SYSTEM.

AUXILIARY CLASSES.

Auxiliary classes are often known as ungraded classes, special classes, or opportunity classes and exist for the purpose of providing individual attention to atypical children without regard to their grade levels. Usually the classes are for pupils who are below normal in their performance because of physical or mental defects, but a few schools have organized special classes for brighter pupils. There is no substantial agreement either on the success of such classes or on the types of pupils to be cared for in them. (See EXCEPTIONAL CHILD; GIFTED CHILD, EDUCATION OF; SPECIAL CLASS.)

J.E.G.

AVERAGE—See CENTRAL TENDENCY.

AVERAGE DEVIATION — See VARIABILITY.

AVIATION AND THE CURRICULUM.

In 1938, officials of the United States Government in charge of aviation became concerned over the fact that not enough young Americans were learning to fly. Convinced that the superior air power of Germany had been responsible for the Munich Pact, officials of the Civil Aeronautics Administration under the leadership of Robert H. Hinckley, Assistant Secretary of Commerce for Air, called a meeting of college and university presidents to consider this gap in American education and to decide on a democratic approach to the problem.

As a result of this meeting, there was born the Civil Pilot Training Program (hereinafter called the C.P.T.P.) of the Civil Aeronautics Administration (hereinafter called the C.A.A.). It was inaugurated in more than 700 institutions of higher learning in 1938. The C.P.T.P. was financed by federal funds paid to the colleges, which in turn arranged with near-by commercial flying schools to

conduct the flight training under federal contract. These flying schools had to meet minimum standards set by the C.A.A. Thus before the invasion of Poland, largely as a result of the vision and leadership of American government and university officials, the C.P.T.P. became an established phase of American higher education. In 1938, prior to the operation of the C.P.T.P., there were only 23,000 licensed pilots in the United States. In 1941, after three years of operation, this number had expanded to 100,000, but even this fourfold increase was inadequate in comparison with the needs of the day.

The Japanese attack on Pearl Harbor in December, 1941, served to dramatize the fact that the United States would have to become a nation of flyers if it would win the war and maintain the peace to follow. "Air-conditioning" America became a major problem of the federal government. Already C.A.A. officials had studied the German plan for promoting aviation by means of the German Ministry of Education. In 1942, after conferences with Dr. John L. Studebaker, United States Commissioner of Education, the United States Office of Education pooled its resources with the C.A.A. and organized the Joint Committee on Aviation Education of the Civil Aeronautics Administration and the U. S. Office of Education under the chairmanship of Dr. Ben D. Wood of Columbia University. Other members of the Joint Committee were Dr. Nickolaus L. Engelhardt, Dr. Paul R. Mort, and Dr. George T. Renner, all members of the faculty of Teachers College, Columbia University.

This committee undertook to devise a plan for extending aviation education downward to the secondary and the elementary schools, and for preparing the curricular materials which such a program would make necessary. The Air Training Corps of America (hereinafter called the A.T.C.A.) was organized early in March, 1942, on the secondary school level, with fourteen experimental units in and around New York City to provide preflight training for boys between twelve and eighteen years of age. The U. S. Army Air Forces detailed Lieutenant Colonel S. J. Donovan to supervise the preparation of the A.T.C.A. training program, and to synchronize it with the needs of the Air Forces Training Command. By September, 1942, the A.T.C.A. had 500,000 boys under training in schools and

boys' clubs all over America, operating in carefully developed units with instruction curricula from A.T.C.A. headquarters. On that date, its direction was taken over by the U. S. Office of Education and preflight training courses were instituted in every secondary school throughout the nation as part of the High School Victory Corps. The curriculum of these preflight courses consists largely of the following: airplane structures, aerodynamics, airplane engines, meteorology, communications, air navigation, human factors in flight, and physical fitness. In the meantime the goal of the U. S. Army Air Forces had been set at 2,000,000 men by the end of spring, 1943.

Besides Lt. Col. Donovan, three men were largely responsible for the development of the A.T.C.A. training program: Dr. Paul R. Mort, member of the faculty of Teachers College, Columbia University; Clayton Knight, World War I flyer; and Arthur Loew, executive of Loew's Incorporated, in charge of national promotion.

Parallel with the work of the A.T.C.A. program, an Aviation Education Research Project was organized under the direction of Dr. Nickolaus L. Engelhardt, member of the faculty of Teachers College, Columbia University, to prepare aviation materials for all phases of the secondary school and elementary school curriculum. In March, 1942, specialists in each of the major curricular areas were selected to engage in research and write instructional materials for use in the schools. By July, 1942, the Air Age Education Series was in press; by September, 1942, the Macmillan Company made the books available to local school systems throughout the United States. A record had been set in the publishing world.

The Air Age Education Series touched on every significant aspect of the existing school curriculum affected by aviation: Physical Science, Geography, Social Studies, English, Mathematics, Biology, Industrial Arts, and Health Education in the secondary schools; and Science and Geography on the elementary level. Concurrently, specialized curricular materials for the preflight training courses also were developed. Two separate research units attacked this problem: the Aviation Education Research Group of Teachers College, University of Nebraska, and the Aviation Education Research Group of Teachers

College, Columbia University. Following closely the Civilian Pilot Training Manual utilized in the college training program, these groups wrote texts suitable for use in aeronautical training on the secondary school level. The entire Air Age Education Series was thus the cooperative result of numerous education specialists.

At the same time that this research and experimentation were being carried on, regional, state, and local conferences on aviation education were attended by local and state school administrative officials meeting with C.A.A. experts and administrators. The conferences sought to determine the best way of introducing these curricular changes and adaptations into the schools of the nation. Of prime importance were the instructional talks on the new geography of the air age given by Dr. George T. Renner, Professor of Geography at Teachers College, Columbia University. Throughout the spring and summer of 1942 these conferences were held in every area of the United States. By September, 1942, every local school system had developed some plan for meeting this urgent new need, and aviation education was introduced as a significant phase of American public education. All of this was achieved on a voluntary, cooperative, democratic basis.

During the summer of 1943, teacher training courses in all aspects of aviation education were inaugurated in colleges and universities throughout the United States, financed with federal funds from the C.A.A. Thus by September, 1943, aviation became an established and significant phase of American edu-

cation on the elementary, secondary, college, and professional levels. (See AERONAUTICAL EDUCATION.) R.N.C.

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Social Studies for the Air Age, H. Bartlett.

Globes, Maps, and Skyways, H. A. Bauer.

Flying High, R. N. Cohen.

Wings For You, E. A. Cross.

The Air We Live In, G. T. Renner, and H. A. Bauer.

The Biology of Flight and Teachers' Manual, F. L. Fitzpatrick and K. A. Stiles.

Mathematics in Aviation, G. Osteyee.

Education for the Air Age, N. L. Engelhardt, Jr.

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Elementary School Science for the Air Age, C. K. Arey.

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AVIATION EDUCATION—See AERONAUTICAL EDUCATION; AVIATION AND THE CURRICULUM.

B

BACCALAUREATE. The word "baccalaureate" is derived from an eighth-century term meaning a stock-farm assistant and was later sometimes considered as a corruption of terms meaning laurel-bearer. Originally it referred to a student not yet master of the arts—i.e., of "the seven liberal arts" and accompanying preliminary studies—in the early Middle Age universities. From the same root probably came "bachelor," which originally meant a young knight serving under an older one's colors. The baccalaureate or bachelor's degree also originated in the Middle Age universities. It indicated the completion of general studies and the ability to study further to become a master or teacher.

Today the term "baccalaureate" is used to refer both to a degree and to the farewell sermon preached to a college graduating class. The baccalaureate or bachelor's degree is the first degree given by colleges in the United States, England, and many other countries. As a rule, in the United States it means four years of study beyond high school or preparatory school, and implies both general study of several fields and more concentrated study of one field. If the latter field is a natural science or so-called vocational field like home economics, the degree is usually bachelor of science (B.S.); if one of the social studies or humanities, it is usually the degree of bachelor of arts (B.A. or A.B.), sometimes bachelor of philosophy (B.Ph.); if law, bachelor of laws (LL.B.). For the past fifty years there has been a trend toward the granting of only one degree for all undergraduate study, whatever the field of specialization: the B.A.

Bachelor's degrees have been somewhat standardized by the efforts of various accrediting agencies. Graduate schools throughout the world examine and exchange notes concerning the qualifications of the colleges from which their students seek to enter. Accrediting associations examine not only the colleges in their regions but also the secondary

schools. The legal, medical, teaching, and other professions set entrance examinations or course requirements which help colleges to maintain proper standards. (See ACCREDITING.) The University of Chicago almost alone has just decided (1942) to give the bachelor's degree after two years of general study in order to have it signify only a general education and to eliminate students who do not have aptitude for advanced concentrated study. Many critics believe, however, that with an ever higher average age for vocational employment and ever more complex studies, fewer students will be content to leave college at the end of their second year. (See DEGREES.) M.G.F.

BACONIAN METHOD. Francis Bacon's formulation of the inductive method for the advancement of learning was of great educational significance. Bacon did not invent the inductive method of reasoning—it is as old as the human mind itself. He did state the procedures under which inductive reasoning should operate in order to be efficient: the removal of prejudices, the thorough observation by the senses, the careful tabulation of cases, the study of exceptions as a check, the formulation of the generalization. Although Bacon himself did not apply his inductive procedures to school methods, his writings paved the way for the later use of observation and experimentation in classroom teaching; for the study of facts as the beginning of the thinking process; for the selection, comparison and classification of examples and instances; for the placing of emphasis upon the problematic approach to learning. E.H.W.

BALILLA, OPERA NAZIONALE—See ITALY, EDUCATION IN.

BANKHEAD-JONES ACT — See FEDERAL AID.

BANKS, SCHOOL—See THRIFT EDUCATION.

BAPTISTS, EDUCATIONAL WORK

OF. The interest of Baptists in formal education in America stems from scholarly sources in England and the continent of Europe. The two most prominent Baptist founders of American colonies, Roger Williams, of Providence, and John Clarke, of Newport, were more or less learned men. Roger Williams not only answered his public critics in able language and logic, but prepared a lexicon of the dialects of the New England Indian tribes, basic for all later Indian dictionaries. Dr. John Clarke was a lawyer and physician before he was a preacher, and had, of course, scientific training. Many of the governors of the colonies and their henchmen were well trained.

The real beginnings of formal education in the American colonies were in the little village schools fostered by the churches and financially supported by the families, and usually located near the village or town churches. The more ambitious attempts at higher and broader education by Baptists occurred about the beginning of the 18th century. In 1719, Thomas Hollis, a Baptist in London, England, founded two professorships and ten scholarships for poor students in Harvard College. The Philadelphia Association, in 1722, proposed that the Baptist churches search for young men of promise for the ministry, in order to educate them. A Baptist Education Society was formed at Charleston, South Carolina in 1775; and in 1789, the Philadelphia Baptist Association gathered a fund for the education of prospective young preachers. The Warren Baptist Association, Rhode Island, did the same thing in 1793. These initiatives were fruitful in the establishment of Rhode Island College, later Brown University, the first Baptist College in America.

The Baptists had three classical academies in 1775, one at Hopewell, N. Y.; one at Wrentham, Mass.; and one at Bordentown, N. J. The establishment of these schools naturally bred the desire among the professional and other intellectual classes for schools of college grade. Rhode Island College (Brown University) was established twelve years before the War of the Revolution ended and had graduated seven classes by that time. In the early days of the 19th century, other Baptist institutions of education arose, more or less

disconnected and local, but which, for decades, were a powerful denominational influence, e.g., Waterville College, Maine, now Colby University; Madison College (N. Y.) now Colgate University; Denison University and Kalamazoo College. In the latter half of the 19th Century came various smaller but useful colleges in the Middle and Far West: Shurtleffe, Ottawa, Sioux Falls, Linfield, Redlands, et al. Bracketed with these should be several theological schools still in existence and going strong—known in earlier days as Newton Theological Institution, Rochester Theological Seminary, Colgate Theological School, Crozer Theological Seminary, Southern Baptist Theological Seminary and Berkeley Baptist Divinity School. In the Southern states, schools and colleges for both whites and Negroes sprang up rapidly from 1850 on.

The greatest impetus to education, however, both general and specialized, among Baptists in all America, came after the founding of the General Education Board in New York about 1903. While this Board was not sectarian, nor limited in its beneficence by any restrictions of race, color, or creed, nevertheless, since Mr. Rockefeller, the founder, was a Baptist of great prominence, it was inevitable that Baptist prestige should be enhanced because of his name. The work of this Board was for the benefit of many kinds of worthy institutions large and small, for whites, Negroes, and Indians. On the other hand, Mr. Rockefeller, a few years before, had founded the great University of Chicago, with its prominent faculty, its graduate schools, its large funds, and its rapid growth, as the last word in education to date. Not only was the founder a Baptist, but the organizer and first president, Dr. William Rainey Harper, also was a Baptist, as were a majority of the trustees. These circumstances not only publicized Baptist prestige in education, but greatly influenced education in general among individuals and communities. For the past 50 years Baptist education has flourished. At the present time there is a tendency among the largest Baptist institutions to relinquish denominational control in the best interests of the colleges themselves, on account of their very diversified students and alumni. The oldest Baptist University, Brown, and the largest, Chicago, have altered

their charters to that effect.

With the great educational and missionary upsurge in the United States about 1840, Baptist educational interests became widespread. It was the beginning of an era in the establishment of railroads, newspapers, and academies throughout the Middle West as well as the East. The American Baptist Home Mission Society inaugurated mission schools for Negroes and poor whites in the south, and the American Baptist Publication Society issued religious literature in great amounts and founded Sunday Schools in the pioneer areas of the West. These societies not only are now at the height of their careers, but have accumulated great endowments. In this work they have been ably seconded by the Woman's American Baptist Home Mission Society. Among the educational institutions fostered by the above societies, some have become famous, e.g., Spelman, Morehouse, and Bacone Colleges; Shaw and Virginia-Union Universities, and Kodiak School. Much of the supervision of schools and colleges heretofore exercised by these societies now has been transferred to the Baptist Board of Education.

The emergence of the Board of Education of the Northern Baptist Convention, founded in 1911 and incorporated in 1920, and succeeding the American Baptist Education Society, established an advantageous system of coordination, and was made possible by the formal unification in 1907 of all the Baptist interests north of the Mason and Dixon Line. This Board is concerned with (1) the maintenance and development of the schools and colleges under Baptist control, in the North for the most part, and a few in the South; (2) the stimulation of interest in the Christian Education of children and young people; (3) maintenance of religious interests among students, and (4) the development of missionary interest in the churches. The sponsorship of the Board embraces 18 colleges and universities, 12 junior colleges, 11 academies in the North; and 10 colleges and schools for Negroes in the South. In addition there are 10 theological seminaries. During the past 35 years, the real property assets of these institutions have grown to approximately \$90,000,000, with endowment funds of over \$125,000,000. University pastors and student counselors are maintained in about 140 institutions,

both Baptist and non-Baptist, for the benefit of Baptist students there. Baptist schools and colleges at the present time have about 2,500 teachers and over 35,000 pupils. Bacone College, Oklahoma, is the only institution of college grade for Indians in the United States.

The Missionary Education Department of the Baptist Board of Education is very important in general education, since there is a close relation between its work and the loyalty of Baptists to their general educational institutions, and the atmosphere therein. This department conducts schools of missions in churches and assemblies; mission study classes; and reading circles of nearly 300,000 members who read 1,500,000 volumes, collectively, every year. It distributes almost countless other books, and organizes competitive educational undertakings. It maintains several missionary and cultural organizations for the young people of the churches: The Worldwide Guild, for young women, with 40,000 members; The Children's World Crusade for boys and girls, with 50,000 members; and The Royal Ambassadors, for boys, with about 15,000 members.

Besides the educational institutions already described, the missionary societies of the North maintain six training schools for general missionary and church school workers. These schools enroll about 200 students and have real estate and endowment funds aggregating about \$1,300,000.

The American Baptist Publication Society, now 118 years old, maintains strong and varied activities. It issues scores of religious books annually, the Year Books of American Baptists, about 150 Sunday School and other periodicals; and maintains branch stores in various cities of the United States and Canada. It supports *colporteur* work, chapel cars and boats; establishes Sunday Schools and Vacation Bible Schools, summer assemblies and camps for Christian culture. It engages also in Americanization work.

In the Southern Baptist Convention, which separated from Northern Baptists in 1844 over matters of policy, much the same categories are maintained as in the territory of Northern Baptists. Their Education Commission lists 12 academies, 24 junior colleges and 26 full colleges, besides 3 theological schools. In the missionary classification there are enrolled 24,629 Sunday Schools and

7,000 vacation Bible schools. Their "Sunday School Board" maintains a large publishing establishment, similar to the American Baptist Publication Society in the North.

While the Negro Baptists, both North and South, who are several million strong, have a general interest in the maintenance and management of Negro education, for the most part those which are particularly successful are under the aegis of the white educational and missionary groups.

In Canada, while the scope and spread of all forms of personal and public education have not increased as rapidly and as extensively as in the United States, nevertheless the results have been highly satisfactory. Among the Baptist colleges and universities credited to Baptists in the Dominion, Acadia College in Nova Scotia and McMaster University in Hamilton, Ontario, are the best known. Many students from these and other institutions pursue advanced studies in the universities of the United States.

Cultural aspects of Baptist education should include the historical societies and libraries, and the distinctly Baptist periodicals. The American Baptist Historical Society at Crozer Theological Seminary, Chester, Pa., the Backus Historical Society at Newton—Andover Theological School, Newton Centre, Mass.; and the Samuel Colgate Baptist Historical Collection, at Colgate University, Hamilton, N. Y. all maintain excellent and large aggregations of Americana, with facilities for research.

There are more than 40 Baptist magazines and papers of recognized standing in the United States. Among the most prominent and successful, both North and South, are *The Watchman-Examiner*, *Missions*, *The United States Baptist*, *The Christian Index*, *The Christian Leader*, *The Ministry*, *The Pastor's News Letter*, *The Commission*, etc. Foreign tongue periodicals, also, are published by Swedish, German, Norwegian, Hungarian, Roumanian, Polish, Italian, French and Slovak Baptists.

Freedom of teaching has been distinctively recognized in American Baptist educational institutions for the most part, with only occasional exceptions. The Charter of Brown University, the oldest American Baptist College, provides definitely for such freedom.

Some Baptist individuals whose personali-

ties have loomed large in the field of Baptist education in America have been Francis Wayland (Brown), E. Benjamin Andrews (Brown), Benjamin Ide Wheeler (University of California), William R. Harper (University of Chicago), William H. P. Faunce (Brown), Augustus H. Strong (Rochester Theological Seminary), H. L. Morehouse (American Baptist Home Mission Society), Ernest D. Burton, Shailer Mathews (Divinity School of the University of Chicago), George E. Horr (Newton Theological Institution), John Hope (Morehouse College), John D. Rockefeller, and Ambrose Swasey (Denison)—all now deceased.

The Baptist World Alliance, organized in London, England, in 1905, includes Baptists of all countries. It holds its meetings once in five years, but meantime exerts a wholesome and material interest on the educational aspects of various Baptist institutions in such countries as Sweden, France and Australia. The missionary societies, especially of the United States, maintain academies, colleges and universities of high grade, in China, Japan, India, Burma, the Belgian Congo, and other lands.

C.M.G.

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BAR GRAPH—See GRAPHIC METHODS.

BARNARD, HENRY (1811-1900).

Henry Barnard was an active protagonist in the Common School Revival in the mid-nineteenth century. In this respect his significance is akin to that of Horace Mann (*q.v.*). In addition, however, he has often been called the scholar of the Revival. A third line of influence has stemmed from his persistent, and eventually successful, struggle to put the Federal government into the program of American education.

As a Leader in the Common School Revival. Barnard, as Secretary of the State

Board of Education in Connecticut and later as State Superintendent of Common Schools there, faced an educational situation similar in general to that confronting Horace Mann in Massachusetts. He strove to counteract extreme decentralization in school control, and to replace it by enlightened and informed state action. He worked also to vitalize local educational services, especially during the interregnum between his services to Connecticut when he was the first Commissioner of Common Schools Rhode Island had ever had.

In the implementation of his program, Barnard stressed the need for *better educated teachers*. The first institute for teachers was established by him in 1839, the work being conducted by Yale College professors and by Barnard himself. A traveling model school for these institutes was devised. A state normal school was established at New Britain, Connecticut. This catenation of contributions by Barnard places him in the long line of succession of those who have worked for an American program based on the postulate that those who would educate must themselves be educated.

His steadfast adherence to this postulate was later (1858) evidenced when as chancellor of the University of Wisconsin he organized a State Normal School in that state.

Barnard's program for a Common School Revival contributed much to the stirring of local initiative in the setting up of town libraries, and of town lectures for teachers and for the public generally.

As Scholar of the Revival. Barnard, from 1855 to 1881, edited the *American Journal of Education*, which one writer has called "the most encyclopedic work on education in any tongue." Another has characterized it as the beginning of an educational literature in America. In any case, it is an educational *magnum opus*.

In this work, Barnard interpreted European educational thought and practice for the information and serious thought of Americans. Its pages, supplemented by additional writings, made Pestalozzi (*q.v.*) better known here; they helped bring to American readers the humane and progressive treatment of juvenile delinquents developed out of the Pestalozzian educational philosophy by Fellenberg and others. The *Journal* also helped bring the philosophy of the gentle Froebel (*q.v.*) across the Atlantic, and helped ac-

quaint us with the underlying Kindergarten (*q.v.*) idea, developed in the United States by William T. Harris (*q.v.*).

As Advocate of a Federal Government Secretariat in Education. Barnard, in spite of the pressing problems confronting him in Connecticut and Rhode Island, never lost sight of his belief that some kind of federal agency was needed to keystone the American educational structure. He had hoped for a national Department of Education, cognate in its position with other such departments in the President's cabinet. What eventuated, in 1867, was the post of United States Commissioner of Education (*q.v.*), to head the Bureau of Education, a bureau of the Department of the Interior. Henry Barnard was appointed by President Johnson as its head. In spite of changes in nomenclature—it is now the Office of Education (*q.v.*)—the main lines of its work as charted by Barnard still direct the course of this important federal educational agency.

P.R.V.C.

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BATAVIA PLAN. The Batavia Plan, originating in Batavia, New York, was a type of classroom organization in which two teachers, one called the regular teacher and the other the assistant, taught large classes. It was an attempt to help pupils in their work so that all might make normal progress and be promoted regularly. Retardation was to be eliminated if possible. While the regular teacher carried on the usual class recitation, the assistant teacher helped the laggards. Recitation activity was reduced and more of the teachers' time was given to assisting pupils in their individual study. The bulk of the special help was given to slow-learning pupils. Modifications of the plan were made by other schools adopting this type of class organization, but the plan as originally devised did

not have wide acceptance in this country.
F.A.B.

BATTERY OF TESTS—See **ACHIEVEMENT TESTS**.

BEHAVIOR—See **DISCIPLINE**.

BEHAVIOR CLINIC—See **CHILD GUIDANCE CLINICS**.

BEHAVIOR JOURNAL—See **ANECDOTAL BEHAVIOR JOURNAL**.

BEHAVIORISM — See **PSYCHOLOGY, SCHOOLS OF**.

BELGIAN FELLOWSHIPS—See **SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL**.

BELL-SHAPED CURVE—See **NORMAL PROBABILITY CURVE**.

BEST-ANSWER TEST—See **OBJECTIVE TESTS AND EXAMINATIONS**.

BIBLE COURSES—See **RELIGION AND PUBLIC EDUCATION**.

BIBLE READING — See **RELIGION AND PUBLIC EDUCATION**.

BIBLE SCHOOL—See **PROTESTANT EDUCATION; VACATION BIBLE SCHOOL**.

BIBLIOGRAPHICAL CENTERS. Bibliographic centers are a recent development resulting from cooperation among libraries for the purpose of coordinating existing library resources and permitting specialization rather than duplication in collections. Catalog cards for books in the libraries which contribute to the center are filed in the center, together with cards for books in the Library of Congress.

The public libraries of Philadelphia, serving as a center for all the libraries in that metropolitan area; the Denver Public Library, which serves the entire Rocky Mountain region; and the Pacific Northwest Bibliographic Center, located at the University of Washington, in Seattle, are the three in existence at present.

E.S.

BIENNIAL SURVEY OF EDUCATION. The Biennial Survey of Education, published by the United States Office of Education (*q.v.*), consists of articles and statistics concerning education throughout the United States. As various chapters are pre-

pared they are issued in a series of bulletins, which are bound together at the end of two years, making one or more volumes. Each of the chapters may be secured at a small cost from the Superintendent of Documents, Government Printing Office, Washington, D. C., or they may be seen in most public libraries.

Among the topics to be found in the Biennial Survey of Education are: Elementary Education; Secondary Education; Industrial Education; Homemaking Education; Agricultural Education; Music Education; Hygiene and Physical Education; Education of Exceptional Children; Adult Education; College and University Education; Professional Education of Teachers; Medical Education; Engineering Education; Radio in Education; Library Service; Review of Educational Legislation; Educational Research of National Scope and Significance. The Biennial Survey also includes statistics concerning State School Systems; City School Systems; Universities; Colleges and Professional Schools; Teachers' Colleges and Normal Schools; Public High Schools; Private High Schools and Academies.

W.V.N.

BILINGUALISM. In America the bilingual child, the one who speaks two languages, is most often the one who hears and speaks a foreign language at home while his schooling is conducted entirely in English. Since language facility is acquired much more through social communication than through direct study, children reared in foreign-speaking homes may never acquire an adequate mastery of English if their social environment outside the home is also one where the foreign language is the one primarily used, or where the English that is spoken is full of inaccuracies of grammar, pronunciation, and vocabulary.

There is some controversy as to whether children who are reared in two languages are handicapped by virtue of this fact even when both languages are used in social communication and both are adequately spoken by the adults. The handicap has even been said to extend to performance on verbal intelligence tests. Some psychologists differentiate between the effect that bilingualism has upon the bright and upon the dull, concluding that it may be of advantage to the former and of disadvantage to the latter. There is some evidence for such a generalization. Terman

found proportionately more children who rated in his genius group among the bilingual American Jews and Chinese than he found among children of English-speaking ancestry. Another relevant finding is that of Hoffman who set up a Bilingual Schedule to measure the amount of foreign language to which the child was exposed and in which he engaged. The Jewish children who formed one of the groups studied were superior to the Italian in a verbal group intelligence test, but equal to the Italian in the Pintner Non-Language Intelligence Test and also in the amount of bilingualism. (The quality of the foreign language spoken in the home was not measured.) Among the Italian children, those with the highest bilingual scores made poorer scores on English reading tests than did those with the lowest bilingual scores. Among the Jewish children, however, those with the highest bilingual scores made better scores both in reading and in verbal intelligence. There was no relationship between bilingualism and the non-language intelligence test used either for the Italian or for the Jewish children. More such studies are needed before foreign parents are advised, as is being done in many instances, that their children will only become confused if their home expects them to use a language other than English.

In any case, the school's attitude towards the child's foreign language should take into consideration the consequences of that attitude, not merely upon the child's mastery of English and of subject-matter taught to him in English, but also upon the social and emotional attitudes of the foreign children and their parents. Relationships between parents and children, feelings of foreign language groups towards the country of their adoption, adjustments between minority and majority groups, all need to be safeguarded. The English language must become, through the schools, a unifying rather than a separating force.

The U. S. Office of Education has initiated a number of studies to discover how English can best be taught to foreign-speaking children both in continental United States and in such territories as the Philippines, Hawaii, and Puerto Rico. Successful practices described range from specific English lessons embodying a variety of techniques to the incidental learning of English as the children go about the work and play activities of an

informal curriculum.

B.B.F.

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BINET-SIMON INTELLIGENCE SCALE—See INTELLIGENCE.

BIOLOGY, TEACHING OF—See SCIENCE, TEACHING OF.

BIRTH INJURY. Birth injury or birth trauma refers to an injury to the brain occurring during delivery. Such injuries happen more frequently in the first born, because first labor is usually the most prolonged and difficult, and in premature babies. They may result in convulsions, motor incoordination, speech defects, paralyzes (usually spastic), and, unless the brain damage is mild, may produce any degree of mental deficiency.

F.K.M.

BI-SERIAL r—See CORRELATION (STATISTICS).

BLACK MOUNTAIN COLLEGE PLAN. Black Mountain College (Black Mountain, N. C.) emphasizes the importance of living and working in a community as a significant part of education. Real community living is hard: it involves tensions, compromises, responsibilities, and the discovery of common bases. But real experience in a community, as a framework to serious collegiate study, can be a source of profound self-knowledge, self-mastery, and genuine civic effectiveness.

Black Mountain College is kept small (a hundred and twenty) so that all relations remain personal; it is representative of modern life and is cosmopolitan. The students—both men and women—come from all parts of the United States, with a few from Europe. The

BLIND, EDUCATION OF THE

faculty are drawn from a number of European countries as well as America. The typical activities of a community are carried on in work, play, self-government, and community planning. In these each student plays an organic part, for he comes to have his unique place, as in any true community. The college is his home and his village during his years in it, and in this microcosm he is confronted with the major phenomena of human society.

Such a community life is perpetually educational. It forms the constant background to the central activity—study. It brings faculty and student members into a close, friendly relationship based on the sharing of responsibilities and problems. Together they have constructed a large modern study building. They work together cutting timber, operating a farm, or doing the office work of the college. A student is thus initiated into the discipline of labor, and perforce learns something of the way most of the American people have to make their living. He discovers how even routine work can become meaningful. He learns to use the basic tools, to handle simple machinery, and he gains some experience in administration and planning.

The union of learning with living emerges in community self-government. Problems affecting the entire community are discussed in general meetings, where all members are present and active. Here and in the meetings of the student body as such, students experience the difficulties and responsibilities of democracy. They are represented on almost all committees, with the exception of some that have a strictly academic function. Their chief officer is a member of the Board of Fellows, which administers the finances of the college and makes faculty appointments. They govern their own affairs, which on the whole are not felt to be apart from the affairs of the community.

Black Mountain is a college, not merely a community, and the center of life is study. High school graduation or its equivalent is required for entrance, and for graduation the standards of the better eastern colleges are maintained. The academic procedures are calculated to make learning a permanent habit and to help the student integrate the fields of study. The fine arts, languages and literature, the social studies, and the sciences are treated as of equal importance and the student is

expected to study in all fields during his first two years. To specialize in one field in preparation for graduation he must pass a comprehensive written and oral examination covering all fields, and demonstrate maturity as a person. For graduation he studies primarily in one field. Graduation is based on faculty review of a student's total accomplishment and upon the recommendation of an examiner from outside the college, who gives a comprehensive written and oral examination in the student's field of specialization.

The college is owned and administered by members of the faculty, entirely independent of outside control and endowment. This permits complete academic freedom. Classes usually take the form of small discussion groups, with intensive private tutorials for advanced students. The faculty-student ratio is about one to four.

Aesthetic and intellectual activity goes beyond the classroom. Students and faculty contribute weekly concerts of choral and instrumental music. There are periodic art exhibits and plays. Lectures on subjects of general interest are given by faculty members and guest lecturers, and regular radio programs are broadcast. In these creative activities and in the art classes flexibility and imaginativeness in meeting situations are developed.

Faculty members are chosen for the breadth of their knowledge and interests as well as for competence in their own fields, in the expectation that they will help the student integrate diverse knowledge through their own breadth of view. The faculty periodically discusses together the progress of each student and reviews the several comprehensive examinations, so that all members of the faculty are constantly aware of the work of all students.

Black Mountain College is perhaps unique in its fusion of higher learning with normal adult civic life and in its treatment of learning as a way of living. This gives an unusual possibility for the intellectual and personal integrations which the modern world needs so much.

K.K.

BLIND, EDUCATION OF THE. The problem of the education of the blind child or adult did not become a matter of social, religious, or professional concern until the latter part of the eighteenth century. It was

Valentin Haüy (1745-1822) who instituted the first systematic experiments in methods of educating the blind, and to him belongs the credit of being the first real teacher of this group. Haüy's *Essai sur l'Education des Aveugles* was the first basic textbook on methods in this field of instruction. The famous Vienna Institute for the Instruction of the blind was founded by Johann Wilhelm Klein in 1804. In our own century, the volume by Pierre Villey, *The Education of the Blind*, has provided a notable attempt to present teaching methods of value.

In the United States there were simultaneous efforts in establishing schools for the blind in New York, Boston, and Philadelphia. By 1940 there were 58 residential schools for the blind in the United States, eleven privately controlled, and 47 under some form of state control.

The movement for classes for the blind in the public schools began when Frank H. Hall secured the establishment of such a class in Chicago in 1900. Public school classes for the blind now exist in twenty-one cities.

Aims: The general aims in the education of the blind differ from aims for the sighted much less than is generally supposed; in the specialized and specific aims the divergence is more apparent.

The development of a strong and healthful physique is complicated in the case of the blind by special problems of physical conditions found among blind children; such as lowered physical resistance, lack of motor coordination, muscular apathy, poor posture, "tics", and other "blindisms."

The aim of providing a thorough elementary and high school education equivalent to that afforded seeing children is being mediated and individualized through guidance programs and curriculum offerings suited to different levels of ability and individual needs.

Special tools of learning receive greater emphasis in the case of the blind. These are, for example, braille reading and writing; the T-V-L, or Taylor, or cubarithm arithmetic slates; and special algebraic symbols, language signs, and chemical notations in braille. (See TOUCH READING.)

The general aim of providing vocational education with a view to self-support is broadening out into experimentation with new types of industrial, commercial, and trade training.

The socialization of each pupil to enable him to become an acceptable and efficient citizen of the community is an aim which is receiving direct attention in those specialized aspects in which the blind evince the greatest need.

The spiritual aims of education are especially urgent in the case of the blind, in the sense of inculcating a philosophy of life in which the meaning of their handicap can be understood and wholesome emotional attitudes developed toward the handicap, toward self, and toward society.

The education of the blind, as of the sighted, must prepare the individual child for successful living in the complex of socioeconomic life of the changing world of our present age. The range of the curricula of such an educational program must include both academic subjects, and pre-vocational, vocational and trades courses. In a modern school for the blind all these must be planned for as fundamentals.

Procedures: The major point of view held in common by all teachers of the blind is that the blind child is first of all a normal child. Aside from his handicap he has a normal mental and physical structure. As a matter of fact, both the psychology of the blind,—if there is a special psychology,—and the methods of teaching the blind, differ from the psychology and methodology used in teaching the sighted much less than is generally believed by the public, and far less than professionals with their pseudo-scientific approaches and phraseologies would have us believe. Indeed, one reason for the lack of special treatises on methods of teaching the blind has been the absence of great differences existing between the normal methodology used in teaching the sighted and that used in teaching the blind.

Teachers of the blind have learned from years of experience that they are not dealing with children whose faculties are different from those of other children, nor are they teaching children whose other senses have gained them some measure of miraculous perception. Neither are the minds of these pupils extra-spacial. There is this difference, however: since one sense, vision, is lacking, the other senses must be developed to a higher degree in order to realize the goal of all teaching. This involves the resort to unique methods and techniques in order to accomplish

the ultimate aim of education of the blind child. The realization of the normalcy of the blind child is then the *sine qua non* of the expert teacher of this group of children.

Psychological problems: The degree to which a blind child develops a normalcy of living is directly dependent upon his success in substituting stimuli received through his unimpaired senses for those which are blocked off from him because of his sightlessness. To facilitate sensory substitution through widening sensory experience and to assist in the interpretation of that experience is the opportunity of teachers of the blind.

To teach and expect a blind child to do the same things that a non-handicapped child does is only human. It is his right to be encouraged to use to his advantage all the capacities he has without being retarded by being made aware of his limitations. It was a very fortunate blind man who, up to the age of six, did not know that he differed at all in physical perfection from his non-handicapped brothers and sisters. He learned to walk and run and play with confidence, absorbing the world about him through sensory stimuli which were available to him and interpreting it as his brothers and sisters did, unaware that there was a sensory realm which he could not enter.

In contrast to this ideal situation, the blind baby is sometimes kept a baby until four or five years of age. Some homes go so far as to keep a blind child in bed or tied to a chair. Fear, physical lethargy, lack of sensory experience, dulling of end-organs, and mental inactivity make a vicious circle resulting in retarded development. When once a child's innate urge to physical activity has been repressed and physical apathy sets in, his sense of touch is soon lost because of the poor innervation of his atrophied muscles, and all his movements become awkward.

Children enter school in all stages of this physical condition and resulting mental breakdown and it is often an arduous task to arouse interest and guide that interest into practical channels.

The essentials, then, are to refine the senses by exercise, to project these senses externally so that they are quick to glean all the information which they are capable of deriving, and by attentive application of earlier experiences to interpret the mental picture as it is recorded. Senses well trained in the scrutiny

of space will make it possible for the blind person to have conceptual notions of many objects and so have a well-equipped mind. The conceptions of many familiar objects, of animals, of plants, which a seeing person acquires by visual perception, are often attained by a blind person only after many years of effort. It is obvious that if a blind person's conceptions of things which form the basis of his action and reasoning are false or uncertain, his actions will be hesitating and his reasoning untrue. The education of a blind person must include not only the provision of correct mental equipment but also the examination and rectification of existing impressions. For freedom of activity a blind person must have activity patterns memorized by his hands and feet and ears as well as mental pictures of objects. All this equipment, developed and coordinated, enables the blind person to approach the goal of normalcy of manner; and all the special skills of trades or professions are incidental to this achievement. C.R.A. and M.E.F.

BOARD OF EDUCATION. The board of education is the local educational authority created by legislative act and as such becomes the agency for the administration of the schools of the community. In practice, boards of education act in accordance with mandatory state laws and deliberate upon the provisions of permissive legislation. There are as many kinds of boards as there are types of school districts, there are boards for common school districts, town and township districts, county districts, and city districts, all differing somewhat in size, selection of members, organization, and function. This discussion is confined to a description of typical city boards of education.

Functions. The chief functions of boards of education may be classed as legislative, executive, and appraisal. As a legislative body, the board formulates and adopts broad policies for the conduct of education in the district; decides upon the amount of money to be raised locally (if the board is a fiscally independent one) and approves the annual budget; determines employment policies and makes contracts; and adopts rules and regulations for its own government as well as for the conduct of the schools of the community.

As an executive body, the board of education employs a professional specialist—the

superintendent of schools—to whom it delegates more or less completely the authority for the management and administration of the schools. Under the dual or multiple types of organization (See ADMINISTRATION, SCHOOL), there may be two or more persons, usually a secretary, business manager, or other officer, who share administrative responsibilities with the superintendent. The board itself may sometimes share in the executive function directly by delegation of certain matters to the board committees for execution. Such direct participation in executive matters is generally condemned by educational authorities.

As an appraising body, the board hears reports, is thoroughly informed on all matters of policy and administration, and evaluates its own activities and the acts of its agents.

Qualifications of board members. Legally there are few specified qualifications for membership on boards of education; the two most important ones are state and national citizenship and residence in the district. There is, however, general agreement concerning the qualifications of board members regardless of occupation, formal education, or sex. These qualifications usually center about the following: personal honesty, a background of experience to enable them to understand educational needs and resources, willingness to devote the time and energy necessary for rendering superior service, cooperativeness and community mindedness, sound judgment, and willingness to delegate to professional employees, without interference, the responsibility of administering the schools.²

Size of board and term of members. In the latter part of the nineteenth century it was not uncommon to find boards of education of thirty or more members selected to represent different parts of the district or wards of the city. Present day boards of education usually have from seven to eight members elected at large from the district or city. This tendency toward small boards is in harmony with the accepted educational theory which holds that small boards are better than large ones because more regular attendance can be secured and problems may more easily be considered by the whole board.

The most common length of term of school board members is four years, with provision for overlapping terms to insure con-

tinuity of policies. A recent study shows that the median term of office of board members in 214 cities of 30,000 population and over is four years. Eighteen of the cities had terms of office of only two years and one had a term of seven years.⁴

Organization of boards. The typical city board of education has at least three officers chosen from its members—president, clerk or secretary, and treasurer. For the conduct of their business, boards may be organized as a single unit or committee of the whole, or as a series of committees appointed for specific purposes. The single unit board is usually considered by school administrators as the more desirable type of organization, since under this plan all problems are given the consideration of the full board. This enables the board to function more as a legislative and policy making body which leaves the details of administration to a professional superintendent and his staff. Under the committee organization there are a number of committees of the board composed of one, two and three members. Committees may be organized for the purpose of considering problems on finance, instruction, personnel, plant, supplies. It is frequently urged that more attention may be given to the various phases of the school through the committee system since problems are first considered by the committee which makes recommendations to the full board for discussion and decision. The chief limitation of the committee plan is that board members are likely to assume administrative responsibilities which should be left to the professional specialist for study and investigation and presented to the entire board for decision.

Politics and boards of education. There is general agreement that boards of education should be removed as far as possible from partisan politics. The two most common means of insuring freedom from politics are to have members elected rather than appointed and to make them independent of municipal authorities.

It is common practice to have board members elected by popular vote in elections held at a time other than the time of municipal, local, state, and national elections. Although in some states board members are elected in the general elections, they are frequently placed on non-partisan ballots. The appointment of board members is less desirable than

election because of the political nature of those who appoint them.

Another means of insuring freedom from political interference is through statutory provisions making them fiscally independent of the municipality or other state or local agencies. Studies show that school systems with fiscally independent boards are slightly superior to those with fiscally dependent boards.

Relation to superintendent, school, and community. The board of education is generally regarded as the policy making body, whereas the superintendent is the executive officer of the board employed to administer the schools. In some states the superintendent has duties and responsibilities imposed upon him by state law or regulations that are quite independent of board action. He is therefore considered both as an employee of the board and as a state school official. (See SUPERINTENDENT OF SCHOOLS.)

Although the board of education is the local governing body of the schools of the city, the best educational thought would not permit the board itself to administer them, but would require that it entrust this responsibility to its employed educational specialist and his staff. The board's functions with respect to the schools are more largely legislative and evaluative than administrative or executive.

In its relation to the community, the board of education is the agency which represents the people of the community. Although boards are given their authority by legislative enactment, they cannot act independently of the will of their constituents, but are under obligation to represent their communities. (See also BOARD OF EDUCATION, LOCAL; BOARD OF EDUCATION, STATE; BOARD OF EDUCATION, TOWNSHIP.) W.C.R.

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BOARD OF EDUCATION, LOCAL.

The term *local board of education* is used when the agency having authority deals directly with the pupils, teachers and parents, in the basic administrative unit, and when there is no intermediate agency between the board and the constituents to be served. A local board of education may be a city board, a district board, or a county board, depending upon the basic unit. District and township boards are frequently known as boards of trustees or boards of school directors or township trustees. The discussion here is centered about the local boards of common school districts.

The most numerous type of school district in the United States is the common school district of which there were approximately 109,000 in 1933.¹ These represent chiefly the rural one-and-two-room ungraded schools and graded schools in towns and villages. They are the typical school districts in twenty-six states. The boards of education or local school trustees of the common school districts are usually made up of three members elected by the people of the district at the annual meeting. The organization of the board is simple; usually there are three officers chosen by the board—president, secretary or clerk, and treasurer. They exercise general control over the schools in all matters except those entrusted to the electors of the district in annual meeting assembled. In some states the amount of local tax money to be raised is determined not by the board but by the annual meeting.

Local boards of education that do not employ a superintendent and delegate the executive functions to him must themselves assume executive authority. This is true in most common school districts in rural areas. The local board of education has the usual corporate powers of other school districts and is the lawful agent of the district. It may buy and sell property, make contracts, sue and be sued, and carry on all functions related to the maintenance of the schools. (See also BOARD OF EDUCATION.) W.C.R.

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BOARD OF EDUCATION, STATE.

The most important agency of state wide jurisdiction to which educational authority has been assigned by statute is the state board of education. The term, state board of education, is extremely difficult to define since there are usually several boards or commissions which exercise some educational functions. Chambers has shown that the state of North Dakota has two such boards, whereas the state of Pennsylvania has eighteen.¹

Commonly there is one state board which has more authority over elementary and secondary schools than the others and may be designated as the state board of education. Forty states have such boards.

Functions. In all the forty states having state boards of education these boards have general jurisdiction over elementary and secondary education; in eighteen states the board has jurisdiction over teachers colleges and normal schools; in nine states they also control state colleges and other teacher education institutions; while in four states the state board has control of the state university. The specific educational functions relative to elementary and secondary schools vary greatly in the different states depending upon the degree of centralization. Such functions as the certification of teachers, inspection of schools, supervision of vocational subjects, distribution of school funds, are frequently assigned to state boards.

Selection and composition. The most common method of selecting state board members is appointment by the governor. This method is employed in twenty-six states. In four states the majority of board members are elected by popular vote; in one state they are appointed by the legislature and in one state they are appointed by the chief state school officer. In eight states boards are composed wholly or largely of ex-officio members.²

Ex-officio board membership has been called into question because the members are chosen for other elective or appointive offices, which do not necessarily qualify them to

serve as members of state boards of education. The method of electing board members by popular vote has been opposed because many well qualified persons often refuse to have their names placed on general election ballots. Although the method of appointment by the governor is not always satisfactory it seems, on the whole, to be the most desirable one for the selection of members of state boards of education.

Size and term of office. The size of state boards of education ranges from three to twelve. The most frequent number is seven.² The term of office of board members is four or more years in thirty-five states with overlapping terms to insure continuity of policy. Board members usually serve without compensation although they are paid necessary expenses. (See also BOARD OF EDUCATION; STATE DEPARTMENT OF EDUCATION; STATE SYSTEMS OF EDUCATION.) W.C.R.

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BOARD OF EDUCATION, TOWNSHIP. The township is the basic unit of school administration in three states—Indiana, New Jersey and Pennsylvania. The township school unit embraces the territory of the civil township, exclusive of the area in the independent districts, cities, boroughs or other exempted districts. Description of the township board of education is difficult because of the different forms of such boards in the three states; a statement of township boards in each state shows the chief differences.

In Indiana the schools of the township are under the control of the township trustee who is elected by the people for a term of four years. According to law, he has practically complete charge of the schools of the township; in practice, however, he is assisted by the county superintendent. The trustees of

the county elect the county superintendent who has general supervision of the rural schools.

In New Jersey the township organization is one of the types of school organizations included under the provisions for Article VII, districts which are governed by a board of education of nine (or a reduced number) members elected by the people. The township board of education functions much like boards in incorporated towns and boroughs under the same legal provisions.

In Pennsylvania, all school districts including city, incorporated town, or township are classed as school districts of the first, second, third, and fourth class, depending upon their population. Township units are governed by board of directors, elected or appointed and varying in size depending upon the class of district in which they serve. The board of directors is empowered to establish schools, to provide equipment, to tax the township for school support, to make rules and regulations for the government of the schools, and to carry on other functions necessary to the maintenance of efficient schools. (See also BOARD OF EDUCATION.) W.C.R.

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BODY TYPES—See **TYPOLGICAL JUDGMENT OF CHARACTER.**

BOLIVIA, EDUCATION IN. Bolivia has essentially the same cultural background as Peru (*q.v.*) and Ecuador (*q.v.*). With them it once formed the Inca empire. Only little more than 10% of 3,500,000 population is white, about 80% is Indian or *mestizo*; the majority of the people still speak the native languages: *Quechua*, and, in the South, *Aymará*. They are extremely destitute, suffering as well from the high altitude where most of them live, as from economic misery. Bolivia, though, is very rich in minerals, particularly tin. But the perpetual fights between groups of army officers for political power and the many unsuccessful Indian revolts have to this moment prevented

the nationwide exploitation of these riches. The defeats in the war of the Atlantic (1879-83) and in the Chaco War (1932-35) still further increased the difficulties. The first made the country landlocked, the second proved its weakness, which invites the European dictatorships as well as the more powerful neighbors to lay their hands on Bolivia's riches. Under these circumstances few educational facilities could develop. Of the little that is claimed in contradictory statistics, nobody can say what really exists and how much the terms university, secondary, vocational, and elementary school really mean.

The Spanish conquest gave educational authority to the Church. Of the three universities the old one of Chuquisaca was founded in 1624, and the others under the first dictator, Santa Cruz, in La Paz 1830 and in Cochabamba 1832. Following French ideas, the liberator Sucre established as early as 1825 an elementary public school system and some secondary schools. In 1912, under the influence of a Belgian adviser, Mr. Rouma, the attempt was made to weaken the authority of the Catholic Church by forbidding religious instruction in the public schools. On the whole, 2,000 elementary schools with 145,000 students, 27 secondary schools with 5,522 students, and some normal and vocational schools are said to be in operation. With the accession, in turn, of Presidents Toro and Busch, both of national and socialist convictions, and of Peñaranda, a full-blooded Indian himself, greater attention was being paid to the Indian problem. The first normal school for teachers of native schools was opened in 1931, and, by 1942, 16 centers of Indian education were claimed. The agreement on the export of all tin and tungsten to the United States during World War II led to an improving economy and a hope that this trend would become stronger and finally result in a reform, perhaps on the Mexican model. F.K.

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BONDS, SCHOOL — See FINANCE, SCHOOL.

BOOKKEEPING AND ACCOUNTANCY EDUCATION. The teaching of bookkeeping, usually on a single entry basis, began in the United States in colonial times, when it was carried on not infrequently in colonial night schools. In the first quarter of the nineteenth century the subject became increasingly important in private business schools in the larger cities along the Eastern Seaboard. As businessmen became more reluctant to give time to the training of apprentices, and as young workers grew impatient to achieve speedy occupational competence, the opportunities for formal school instruction in bookkeeping became more evident. Bookkeeping instruction attained a level of considerable efficiency in the Civil War and post-Civil War period.

The development of gigantic corporate enterprise in the United States made accountancy a necessary instrument in business control. At the beginning of the twentieth century, therefore, several universities established collegiate schools of business. Accountancy, was, and continues to be, the core subject material of most business schools at the college level. The establishment of accountancy as a profession, and the formal grant by the several states of certification as "Public Accountant," have made training in this area a vocational objective of many college students. It now ranks as one of the outstanding courses in occupational training of American universities, while supplementary training in accounting, as an aid to business management and improved understanding of economic theory, is also growing in popularity.

Even before the twentieth century the teaching of bookkeeping was included in some secondary schools. At that time most of the teachers and subject material were taken for this purpose from the private business schools, but as time went on there was a gradual adaptation of materials to the needs of secondary schools. The journal approach, developed in the private business school, has been supplanted quite generally by the balance sheet approach. In other words, the formal logical sequential presentation of subject matter has given way to an emphasis

upon understanding and interpretation, rather than upon the mere ability to perform routine operations. The increasing difficulty which high school students experience in obtaining initial positions as bookkeepers has caused a reconsideration of the place of bookkeeping in the secondary school, resulting in a decrease in the amount of formal paperwork and in an attempt to enrich the interpretive aspect of bookkeeping. Because of a growing tendency to question the value of a formal knowledge of opening and closing entries and of the ability to work out elaborate work sheets, there have been developed courses in socialized bookkeeping and record keeping designed to appeal to the heterogeneous student body of the secondary school. (See BUSINESS EDUCATION.) H.A.T.

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BOOKSTORE, SCHOOL. Many schools find it advisable to set aside one room in the building as a depository for textbooks and other school supplies. This room, known as the bookstore, is operated under the direction of the administration.

With the consent of the board of education a school store may be opened, through which textbooks and school supplies are retailed to pupils at a small profit.

The principal advantage in the school's operating its own store is that it makes possible a saving to the parents and insures the maintenance of standards of quality throughout all the classrooms of the school.

The principal disadvantage in the school's operating its own bookstore is that it places an added responsibility on the administration. Therefore, if satisfactory service can be secured from community stores, it is usually considered better to rely upon them for handling the books and supplies. O.G.J.

BOTANY, TEACHING OF—See SCIENCE, TEACHING OF.

BRAILLE—See TOUCH READING.

BRAIN—See NERVOUS SYSTEM.

BRAZIL, EDUCATION IN. *Organization.* Brazil is a federal state. The central

government establishes the foundations and general policies of education throughout the country. The states organize and maintain their own educational systems. The federal administration of education is conducted primarily by the *Ministry of Education and Health*. There are, however, certain educational services placed under the control of other ministries. Each state maintains its own department of education. The municipalities also may maintain schools, which are, however, directly inspected by the respective state department of education. Nearly half of the total number of schools in the country are maintained by the states; the municipalities support about one-third of the schools; private agencies finance and are responsible for about one-fourth of them. The Federal Government maintains only standard institutions, comprising higher, secondary, and industrial schools.

Elementary education is provided, in general, through courses having five grades. Secondary education comprises two successive divisions: the gymnasium (four years) and the college (three years). The curriculum of the gymnasium is uniform for all students, who, after graduation, may enter any industrial, commercial, or normal school. The college has two different sections: classical and scientific. Higher education offers courses in philosophy, law, medicine, pharmacy, dentistry, education, economics, engineering, agriculture, architecture, fine arts, music, and physical education, all according to uniform standards. Industrial education is provided in industrial schools (four years) for skilled workers, and in technical schools (three years) for managerial positions. The training of elementary school teachers is conducted in normal schools maintained by the States; that of secondary school teachers is undertaken in schools of philosophy, in which there are departments of education.

Significant educational movements and leaders. The *Jesuits* were the early educators of the country in colonial days. The migration of the Royal Portuguese Family to Rio de Janeiro in 1808 was responsible for the creation of a few schools of higher learning. The Independence, proclaimed in 1822, did not create, however, a greater interest in education. Social life was governed by an agrarian economy, based on vast rural

properties, and by slavery. This situation explained a particular trend toward a very literary and excessively formal culture. At the close of the Empire there were, despite projects of remedial legislation and the efforts of prominent statesmen (João Alfredo, Leônicio de Carvalho, Rodolfo Dantas, Rui Barbosa), but 14 children per one thousand inhabitants enrolled in the schools. After the abolition of slavery (1888), changes in the type of economy began to take place, leading toward the industrialization of the country. Through the influence of Benjamin Constant Botelho de Magalhães, one of the founders of the Republic, a Ministry of Public Instruction was created in 1890. But it did not last very long. Up to 1930 the Central Government did not show much interest in education; it did, however, create a number of vocational schools and subsidize elementary education in the Southern States where there were numbers of colonists of foreign stock. In 1930, Brazil had 51 pupils per one thousand inhabitants. During this period, certain states showed a considerable development of their educational systems. Such development along with the spread of modern educational ideals, was very irregular in the various regions of the country. In the Empire, public education was dominated by formal instruction and the practice of the Lancastrian system. Later on, the theories of Herbart were accepted, and, more recently, those of progressive education, which is known as the *escola nova* movement. It is interesting to observe that the ideas of reform were almost always adopted through governmental initiative before they were sufficiently known and practiced by educators. The first movement deserving special emphasis is the reform of public instruction of the State of São Paulo, undertaken in 1894, by Gaetano de Campos, Gabriel Prestes, and Cesario Mota, and consolidated afterwards by Oscar Thompson in 1911 and A. Sampaio Doria in 1920. Several states and the Federal District adopted important measures for the reorganization of their school systems (Distrito Federal, 1918, Afrânio Peixoto; Ceará, 1922, Lourenço Filho; Bahia, 1925, Ansio Teixeira; Minas Gerais, 1927, Francisco Campos; Distrito Federal, 1928, Fernando Azevedo; Pernambuco, 1929, Antonio Carneiro Leão). The movement of political reorganization,

expressed in the national revolution of 1930, was reflected in the field of education, giving emphasis to many ideas of reform. In the coordination of these new ideas, the *Brazilian Education Association* has exercised a prominent role since its foundation in 1924 by Heitor Lyra da Silva and other educators. This association promotes forums, courses, publications, and national congresses of education. The Provisional Government (1930) created the *Ministry of Education and Health*, and emphasized the trend toward greater centralization of educational administration. Higher education and secondary education were reorganized in 1931. Elementary education expanded, doubling the number of schools and pupils. The ideas of reform according to the principles of progressive education showed a great development throughout the country. In 1933, a group of modern educators published a manifesto *Educational Reconstruction of Brazil*. This document analyzed the cultural situation of the country and studied the importance of a complete system of education having an organic structure according to the necessities of Brazil and the modern economic and social trends of the present civilization. The organization of national agencies devoted to statistics and the creation of a technical organ under the Ministry of Education are contributing toward a new objective in education. In 1938 the Federal Government created the *National Institute for the Study of Education*. Many books were written, interpreting new theories, spreading information, and reporting results of educational researches. A number of these books have been translated into Spanish, thus circulating in the other Latin American republic. Expressions like *active teaching*, *project method*, *pupil self-government* and others became current. Recent federal legislation (1942) such as the laws of industrial and secondary education, expresses the objectives and techniques of progressive education, stressed by Minister Gustavo Capabema in his introduction to the laws.

Educational Relations with the United States. During the early days of Brazil, the ideas concerning education were exclusively those of Portugal, but these were soon powerfully and continuously influenced by French theories. Italian and German influences were present in certain states that had received a

more intense flow of immigrants. Since 1870, however, there has been an ever-increasing influence of American educational ideas, at first through the influence of schools and colleges founded by missionaries. The influence of new educational methods introduced by the *Escola Americana* (São Paulo), was great in the reform undertaken by this State in 1894, in which an American teacher, Miss Marcia Brown, cooperated. Agricultural education was improved in 1921, in Minas Gerais, by an American specialist, Dr. P. H. Rolfs. Medical education received the co-operation of Dr. Bowman Crowell, in the *Instituto de Manguinhos*; of Miss Eton Parsons, in the Nursing School *Ana Nery* at Rio de Janeiro; and of the Rockefeller Foundation, which helped in the erection of buildings for the *Faculdade de Medicina de São Paulo*. This foundation grants fellowships to Brazilian physicians for graduate study in the United States. In 1929 the Carnegie endowment offered ten fellowships to Brazilian teachers. In the following year summer courses for American students were conducted in Rio de Janeiro, with the collaboration of the *Institute of International Education*, New York. In 1939, the University of Pennsylvania conducted a summer course in Rio de Janeiro. An increasing number of Brazilian students are receiving scholarships for study in the United States, through the *Instituto Brazil-Estados Unidos*, created in 1939 as a central private agency fostering cultural relations between the United States and Brazil. English is a compulsory subject for all secondary students.

Statistics. There are four universities in Brazil: *Universidade do Brazil*, in Rio de Janeiro; *Universidade de Minas Gerais*, in Belo Horizonte; *Universidade de São Paulo*, in São Paulo; and *Universidade de Porto Alegre*, in Porto Alegre. The extent of education in Brazil may be seen from the following:

	Schools	Teachers	Students
Elementary education	42,794	82,907	3,350,737
Secondary education	886	12,733	183,896
Higher education	235	4,108	21,089
Teacher education	499	4,314	28,250
Art education	594	1,511	15,862
Commercial education	625	4,733	52,020
Industrial education	164	1,400	14,903
Domestic education	695	2,189	40,122
Other types of education (Agric., military, arts and crafts, etc.)	1,109	4,333	84,648
Total	47,601	118,228	3,791,500

The total population of Brazil is 41,505,083 inhabitants, distributed over an area of 8,511,189 K². L.F.

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BRITISH ISLES, EDUCATION IN
THE—See ENGLAND AND WALES, EDUCATION IN.

BROAD-FIELDS CURRICULUM. A curriculum composed of a few required large areas or major trunk lines in which the basic subject matter is drawn from the total area without regard for subject lines. It is a new method of selecting and organizing the essential subject matter within the area. Some common examples in the elementary and secondary schools are social studies, science studies, language arts, general arts. In the junior and senior colleges the broad-fields curriculum is composed of a series of required survey courses the most frequent of which are the physical sciences, the biological sciences, humanities, fine arts, home living, philosophy, and religion. Sometimes the areas may be described as immediate social relationships: work, leisure, personal living.

The broad-fields curriculum developed as a protest against the freedom of the elective system in the colleges and the activity program in the elementary schools, each of which was also a protest against the fragmentation of the traditional subject curriculum. Advocates claimed it was a much needed system which avoided some of the major pitfalls of the extreme subject organization and also the lack of planning which seemed to accompany

the freedom under the elective and activity programs. These antecedents have resulted in two rather different types of practices. The dominant group leans heavily toward the subject viewpoint, structure, and practice. The minority group accepts the general framework, but tries to keep alive within it the previously accepted principles of pupil-teacher freedom. More recently the movement toward the broad-fields curriculum has been supported by the advocates of general education who oppose the narrow specialization which the subject curriculum demands.

The fundamental educational conceptions underlying the broad-fields curriculum are the same as those underlying the subject curriculum. The basic idea is that of a curriculum planned in advance by older persons for less mature persons to study. The emphasis is upon teaching, in as psychologically valid a manner as possible, certain organized bodies of knowledge within the accepted area. Differences in designation of fields arise out of the approach. Moving from the subject viewpoint to broad-fields, the subject designation, such as social studies, is most frequently used. Beginning with an analysis of the larger needs of adults, the result is usually social living, home living, work, leisure, or some other more general grouping.

The broad-fields curriculum is receiving widespread study at the moment. To many it is a first step in the improvement of the subject curriculum, for it breaks from the scientific study of subjects which is valuable to only a few potential specialists. Its chief merit lies in the larger area from which the basic material is drawn. In planning a curriculum existing knowledge must be re-evaluated in the light of new needs. Its chief defect is that it does not go far enough to challenge the framework within which such thinking takes place. Unless this framework can be modified, little permanent progress in curriculum making can be achieved. (See CURRICULUM.)

L.T.H.

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BROTHERS OF THE CHRISTIAN SCHOOLS—See INSTITUTE OF THE BROTHERS OF THE CHRISTIAN SCHOOLS.

BUDGET, SCHOOL — See FINANCE, SCHOOL.

BUILDINGS, SCHOOL. Standards. Evaluation of school buildings is based upon the recognition of certain standards of efficiency in facilitating instruction and in meeting the needs of the community. These standards usually reflect the ideals of authorities in the field of education and school architecture at any particular period. School building standards change with changes in educational philosophy and new conceptions of educational psychology.

Score cards for one-room rural school buildings, for elementary school buildings of larger school systems, and for high school buildings have been devised to facilitate evaluation in terms of certain recognized standards. An advantage of the score card is that it fixes attention upon the details of the building and enables comparison of all or any part of the school plant with recognized standards for that particular type of building. A typical score card is divided into a number of major divisions, such as: I. Site, II. Buildings, III. Service systems, IV. Classrooms or recitation rooms, V. Special rooms. Each of these major divisions is also divided into a number of subdivisions such as (under "I. Site") A. Location; B. Nature and condition; and C. Size and form. These subdivisions are in turn divided into the number of topics necessary to cover the major standards included in the evaluation, such as (under "A. Location") 1. Accessibility; 2. Environment.

In the construction of the score card a certain number of points is allotted for the ideal building as measured by the standards—usually 1,000 points. These points are distributed among the major divisions according to the opinion of the author of the score card as to the relative contribution of each division to the total efficiency of the plant. For example, one score card for high school buildings, based upon 1,000 points for the ideal building, awards 100 points to "Site," 155

points to "Building," and 270 points to "Service systems." The remaining 475 points are distributed among the other four major divisions of the score card. The points allotted to the major divisions are likewise distributed among the several subdivisions and redistributed among the several lesser subdivisions or items. The score on any subdivision is based upon the conditions found as compared with these standards. The total score is the sum of the scores on all the individual items. The score card contains directions for interpreting the scores obtained.

The standards upon which a score card is built are usually published in a separate bulletin to be used in conjunction with the score card. These standards are arranged in outline form according to the major divisions, subdivisions, and items appearing on the score card. The score card should be used only in connection with the outline of standards used in its development.

Most states and local governmental units prescribe for school buildings certain minimum standards with respect to safety, sanitation, and general character of construction. These standards incorporated in the school laws and municipal ordinances are intended to protect the school children and the occupants of adjacent property from injury resulting from faulty construction, careless habits, or fire. Regulations are enforced through inspection at intervals by authorized persons.

With respect to fire hazards these regulations usually are concerned with fire-resistive construction materials, such as brick or reinforced concrete, fireproof stairways and corridors, adequate numbers of exits, handrails on stairways, doors opening outward with panic bolts and catches to hold doors open, fireproof roofing, fireproof boiler rooms, adequate provision for fire hose and fire extinguishers, protection for electric wiring and outlets, and safe disposal of waste materials.

With respect to safety and sanitation of school buildings, state and local governments also set up minimum standards for such details as strength of walls, carrying load of floors, strength of foundation, sewage disposal, proper heating and ventilation facilities, adequate lighting, and sanitary water supplies and toilet systems.

Each of the forty-eight states has statutes providing authority and prescribing limitations under which school districts and school officers may or must proceed in planning or constructing school buildings. The extent of direct state control varies with the several states. Some provisions are mandatory for boards of education, while others are permissive, depending upon the degree to which boards have been delegated authority to act upon their own discretion. These provisions for the control of school buildings include selection of school sites, issuance of bonds, legal debt limitations, contracting with architects and builders, advertising for bids, payments for work, protective bonds, liability for fire, theft and other damage during construction, approval of plans by some state agency, management and disposal of school property, etc.

Utilization of School Buildings. Studies in the use of school buildings reveal great waste. It is out of the ordinary to find a building that has all of its rooms in use every period of the school day. Rarely are all the schoolrooms of a building utilized to their fullest capacity. Some waste in utilization of the school plant inevitably results from the short school term and the six-hour school day. Few schools are in session for more than ten months and some schools operate for only six or seven months.

Moreover, a great deal of waste results from failure to use the plant to its full capacity during the school day. One study found "the average percentage of *room utilization* in 58 schools to be only 75.4, and the average percentage of *pupil-station utilization* to be only 41.1."⁵ The loss from failure to use the school plant to its maximum capacity during the school day becomes more impressive when one considers the tremendous investment in the school plants of the United States (estimated at eight billion dollars in 1941). Much of this loss results from lack of foresight in planning the buildings, from failure to adjust the school organization to meet the needs of the school program, and from lack of care in the scheduling of classes and the assignment of rooms.

Often careful survey of the school building to determine the extent of utilization will reveal that what seems to be an overcrowded condition is merely improper utilization of

the plant. A familiar technique for such a survey is the construction of a chart which shows the use of each room during each period of the day for each day of the week, the pupil capacity of the room, and the number of pupils using the room each period. This chart shows at a glance the extent of room utilization and of pupil capacity utilization.

Most building surveys show that such rooms as the auditorium, the gymnasium, the cafeteria, and shops and laboratories are used least. There is a tendency today to make provision for greater use of these special rooms as teaching units and for community purposes. Auditoriums, gymnasiums, and school libraries are being located on first floors and constructed so as to serve both school and community needs. Doors are provided which may be opened to the public without opening the rest of the building. The increasing tendency to use the local school building as a meeting place for community activities reduces the loss from lack of utilization.

Cost. School buildings today range in cost from less than one thousand dollars to several million dollars. A single classroom in a modern school building may cost more than fifteen thousand dollars. The plan of the building, the materials of construction, and the workmanship are important factors in determining the cost. For example, studies show that a small one-story structure of the "open type" plan costs more per cubic foot than a large two-story square building. There are many factors which influence the cost of school buildings, such as kind and availability of materials used, climatic and physical conditions, architectural fees, prices for materials and labor, the style and structure of roof, interior finish, plumbing and electric service, and foundations.

No single measure for determining the relative cost of school buildings has been universally accepted. Cost per cubic foot is probably the most common unit of measure. Other units of measure include cost per room, cost per square foot per pupil accommodated, cost per square foot of educational floor area, and cost per weighted pupil station (the pupil stations determined through the use of floor area standards are weighted according to the different cubatures for the various types

of pupil stations such as classroom, auditorium, and library).⁶ Unit measures of cost are probably of most value when used to compare buildings within communities similar in climatic, physical, and economic conditions. It should be remembered that a building may have a low cost per cubic foot and yet in reality be expensive if a relatively small percentage of its volume is available for use.

Equipment. The problems of equipment for school buildings are so closely associated with the educational plan and the curriculum offered that it is difficult to think of one except in terms of the other. The study of equipment problems constitutes an important preliminary step in the planning of a school building.

The plan for school equipment, like the plan for the school building, should be developed cooperatively. There is an increasing tendency to enlist the services of entire staffs of all departments in the planning of the equipment which they are to use. Much of the progress made in recent years in adapting school equipment to educational purposes has been brought about through cooperative planning.

The plan for equipment for a school building should accompany the specifications for the building, so that the architect may understand clearly the use to be made of each unit of the building. The plan for equipment should indicate specifically the type and location of each item of equipment for each unit of the school building.

The modern classroom must provide for both individual freedom and group activity. Greater adaptability is possible if most equipment is movable. Desks, tables, chairs, bookcases, and map stands are examples of movable equipment.

The tendency in elementary schools is toward tables and chairs for kindergarten and first and second grades, and a combination of tables and chairs and movable desks for the upper elementary grades. Much of the equipment needed in the school can be made or acquired at little or no cost. Old carpenters' tables may be cut down to provide space for painting supplies, for lunch equipment, and for rest pads. Tables for clay modeling and for science work can be made from shipping boxes. Easels and bulletin boards can

be constructed by the children from scrap lumber. They may also help construct many kinds of playground equipment. Children delight in making things and acquire many desirable learnings from such activities.

The Committee on Schoolhouse Planning and Construction of the National Education Association lists these factors to be considered in planning school buildings:

1. *Adaptation to educational needs.* The plan should conform to the schedule of rooms already adopted.

2. *Safety.* The corridors and stairways should permit the building to be vacated in three minutes even if one stairway is made useless by smoke. . . .

3. *Healthfulness.* Every room should have abundant natural light. . . . The toilets should be distributed conveniently on each floor and should have windows opening directly to the open air. . . . There should be a sufficient number of bubblers for drinking purposes, so located that they will not block traffic. . . . Washbowls should be adequate in number. . . . To avoid damp, unsanitary, or poorly ventilated rooms there should be no basement as this term is usually understood, with the possible exception of space for the heating plant. This plant should, when possible, be located entirely without the confines of the building. In rural communities the one-story type of building is often desirable, as it is a reasonable guarantee of safety in case of fire. To avoid excessive climbing of stairs the building should not contain more than three stories and a basement, except in congested cities where land is very expensive. . . .

4. *Convenience.* The location of rooms with reference to one another should be carefully studied. . . .

5. *Expansiveness.* The building should be so planned that it can be enlarged as much as may be needed without unnecessary cost and without cutting off natural light and ventilation of any of the existing rooms. . . .

6. *Flexibility.* Since it is not possible to foresee all the requirements of the future, every school building should be so planned and constructed that changes can be made if necessary in the lengths of the rooms. . . .

7. *Aesthetic fitness.* The skill of the architect as a designer is shown by his ability to clothe the building with a pleasing exterior without doing violence to the interior. The

exterior elevation should reflect the major functions of the school itself. It should give evidence of the fact that the building is a pleasant and attractive place in which young people are happily and busily engaged in worth-while enterprises. . . . The interior should likewise produce attractive and pleasing effects. The decorations should be modest and cheerful. The finish must be such as to lead the pupils to take pride in keeping the building free from injury and all disfiguration.

8. *Economy.* Economy in the plan is secured by:

(a) Accurate determination of the size needed for each room. This depends in turn upon the adoption of scientifically studied layouts. . . .

(b) Duplicate uses of rooms.

(c) Elimination of waste areas. The percentage of floor area devoted to "instruction" (which includes not only classrooms, laboratories, and shops but also the auditorium, gymnasium, and library and their accessories and study halls, also lunch rooms if used as study halls) should not be less than 50 per cent of the total floor area, and may, under favorable conditions and careful planning, reach 60 per cent or even more.

(Page 1 of the report recommends that the several parts of the building should utilize approximately the following percentages of space: walls and partitions, not over 10 per cent; flues, not over 3 per cent; stairs and corridors, not over 20 per cent; accessories, not over 1 per cent; administration, not over 16 per cent and instruction, not less than 50 per cent.)

L.E.M and M.F.S.

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BULLETIN BOARD. A rectangular board of convenient size, made of cork or of soft composition material and placed on a corridor, classroom, or office wall. To it may be fastened papers or cardboard materials containing announcements, records, schedules, illustrations, news items, or anything of interest to members and patrons of the school. In the classroom this board is usually as wide as the blackboard and is placed at one end of the room. Objects and materials are sometimes put on the bulletin board for exhibit purposes, but the board is not used primarily for display purposes.

There are many other uses to which the bulletin board may be put. For example, by posting clippings from newspapers and magazines the teacher may invite students' attention to current developments relating to activities in which the class is engaging. When the class knows that it is the students' rather than the teachers' bulletin board, the bulletin board may serve many of the purposes of a class newspaper. C.M.R.

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BUREAU OF CHILD GUIDANCE—
See CHILD GUIDANCE CLINICS.

BUREAU OF EDUCATION — See UNITED STATES OFFICE OF EDUCATION.

BUS, SCHOOL — See TRANSPORTATION OF PUPILS.

BUSINESS ADMINISTRATION OF SCHOOLS. *Business administration of schools* refers to the planning and management of all activities of the school corporation having to do with the raising or spending of money for the promotion of the educational program. The financial and educational aspects of school administration are so interdependent that one person must direct both if the schools are to operate at maximum economy and efficiency. Yet the business administration has been and still is separated from the educational administration in some school systems. This separation of powers is called the *dual system*. Under it the superintendent of schools does not control the business direction of the schools, although his having such control is considered to be essential by students of educational administration.

The trend has been toward unity of control under a superintendent qualified to direct business activities toward the best educational results.

The activities considered to fall under business administration are numerous and the terms used to designate them are varied and not always descriptive. In *Problems in Educational Administration* by Strayer, Engelhardt, and others five main types of activities are listed:

(1) those primarily secretarial (having custody of records of the Board, including seal, contracts, securities, title papers, insurance policies, receipts, bills, etc.; making reports; keeping records; etc.);

(2) those primarily financial (preparing annual budget; preparing, examining, and certifying pay rolls; insuring school property; collecting and disbursing school funds; etc.);

(3) those pertaining to the purchasing of supplies (listing needed supplies, advertising bids, keeping perpetual inventory, etc.);

(4) those pertaining to the operation and maintenance of the physical plant (inspecting of school plant and equipment, preparing specifications, certifying bills for maintenance, etc.); and,

(5) those pertaining primarily to capital outlay (acquiring title to property, supervising voting and issuing of bonds, approving plans and specifications of architects, etc.).

Business administration is good only when it keeps in full focus the primary functions of the schools. It can be said, therefore, that the best test of efficiency of business administration is the effectiveness of the schools. The most important of business activities from this point of view is the preparation and administration of the school budget, which is a work plan for a fiscal period setting forth the educational program, the expenditures involved, and the sources of the revenue needed. When the budget is approved by the board of education it becomes the responsibility of business administration to convert the plan into educational results with a minimum of changes and a maximum of smoothness. (See FINANCE, SCHOOL.)

J.E.G.

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tional Administration (Teachers College, Columbia University, New York, 1925).

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BUSINESS ARITHMETIC. Place in the Curriculum. The practical value of mathematics, particularly arithmetic, in the management of business has been recognized since the colonial period. Arithmetic was originally introduced into the curriculum because of its value in business. Since that time commercial arithmetic has remained as the most important vocational branch of elementary mathematics. Transactions among business units, as well as interior control of each unit, are continually giving rise to problems that require mathematical treatment. Thus, any person entering business, whether as executive or clerical worker, requires a detailed understanding of the business uses of mathematics.

The purposes for which courses in business arithmetic are organized appear to fall under two general headings—computational and informational. The computational aims include skill and accuracy in the operations, including percentage; the proper usage of business calculations; and the use of graphs and other means of presenting quantitative data. The informational aims are based on the fact that mathematics affords an effective means of studying the nature, organization, and conduct of business. The business calculations provide the means for understanding the activities of the business units, the transactions that give rise to the calculations, and the duties of those who make the calculations in the real situation.

The National Survey of Secondary Education found that the course in business arithmetic is offered as an elective in either the ninth or the tenth grade with about equal frequency (3).

Trends in Content. Trends in the content of business arithmetic courses are mainly directed to the need to make the courses functional, and to changes in the business usages of mathematics. Complaints of employers have tended to focus attention on the functional purposes of the course, and there has been little tendency to stress disciplinary aims. As a result, studies of business usage of mathematics have led to the discarding of obsolete processes and compli-

cated operations, and to the introduction of the calculations most often used. Modern textbooks and courses of study reflect the increased use in business of graphs, simple statistical procedures, and the calculations necessitated by taxation and social security legislation.

Trends in Classroom Procedures. There has never been a clearcut policy in the schools as to which department is responsible for business arithmetic. Some administrations assign it to the commercial instructors, others to the mathematics instructors. There are, of course, advantages and disadvantages to both plans, but the net result has been the lack of a discernible trend in classroom practices based on a developing theory of learning. Such tendencies as exist are designed to increase the value of the subject for guidance purposes. To this end classes are reported observing business activities, setting up business situations in the classroom, and making surveys of community problems. There are few reports, however, of the use of diagnostic and remedial practices in correcting difficulties with the fundamental operations, or a scientific treatment of such topics as problem solving. (See ARITHMETIC, TEACHING OF.)

L.B.K.

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BUSINESS EDUCATION. Business education is one of the most important areas of subject matter in the secondary school in terms of enrollment, being exceeded in the average school only by English. While book-keeping was a required subject in the English High School established in Boston in 1823, business subjects were not general in high school until the beginning of this century.

Since then these subjects have had a phenomenal growth. Part of this was due to the many opportunities available to high school graduates in clerical positions, and part was due to the need for subject matter better fitted for the ever increasing secondary school population. The academic subjects are poorly fitted to meet the needs and interests of the mass of children now going to secondary schools, and since until recently, and to a considerable extent even at present, business subjects were the only alternatives, pupils flocked to business subjects, sometimes as the lesser of two evils, but more often with the hope of securing business positions from their training.

The enrollment in business education courses is considered by some to be greater than can satisfactorily be absorbed by industry and business. Even shorthand has been bitterly attacked though it remains the best specific training likely to serve as a basis for job placement for most young women. To meet these criticisms there has been a greater emphasis upon such subjects as junior business training, economic geography, business law, economics, and similar social-business subjects. Attempts are being made to integrate these subjects into a well organized subject matter sequence, and, with considerable success, to broaden the job opportunities in line with the increasing diversity of clerical positions that have developed. This is part of the explanation for the growth of office practice as a specific business subject. Distributive education also has been heralded as a field better fitted to meet the needs of more students.

The upgrading of the age of beginning employment in business has resulted in a demand that specific job training for business be largely relegated to the junior college level and that the secondary school limit itself, with the possible exception of the twelfth year, to general pre-vocational business education. Thus far this demand has not been realized in practice.

The private business school which was the original institution giving business education has been holding its own with difficulty. Nevertheless those private business schools which have kept themselves up to modern business standards and which have dealt with mature post-high school students have con-

tinued to render a useful service.

The collegiate school of business was not developed until after the opening of the century, but now is a characteristic school of the typical university. While the core of its service and offering has been and continues to be training for professional accountancy, the more progressive collegiate school of business is attempting, not without some success, to serve as a higher school of learning for the development of professional managership. While many areas of service have been professionalized, management and entrepreneurship still are largely in the rule-of-the-thumb, take-a-chance stage. The collegiate school of business has dedicated itself to overcoming this weakness in our economic structure. (See also BOOKKEEPING AND ACCOUNTANCY EDUCATION; BUSINESS TRAINING; CONSUMER EDUCATION; DISTRIBUTIVE EDUCATION; OFFICE PRACTICE; SECRETARIAL TRAINING; TYPEWRITING.) H.A.T.

References.

L. S. LYON, *Education for Business* (University of Chicago Press, Chicago, 1931).

F. G. NICHOLS, *Commercial Education in the High School* (D. Appleton-Century Co., New York, 1933).

H. A. TONNE, *Business Education: Basic Principles and Trends* (The Gregg Publishing Co., New York, 1939).

BUSINESS ENGLISH. Before 1920, the majority of commercial high school curricula included a one-term or two-term course in Business English, usually offered in the first year. It consisted essentially of a study of models of business correspondence, practice in letter writing, and related corrective work in good usage, functional grammar, spelling, punctuation, and use of the dictionary. With the incorporation of the commercial curriculum into general secondary education as a series of elective courses, and the realization that all high school students should develop ability to write effective business letters, Business English as a separate course has largely disappeared and its content has been merged with that of the regular curriculum in written English. In some high schools, the departments of English and secretarial studies agree on uniform arrangement and punctuation of

formal parts of letters, use of the same manual of style, gradation in psychological and social complexity of various types of correspondence ranging from simple letters of application to adjustments of claims, and on standards in technical English at various levels. The belief that the English of business has a distinct diction and style has been generally abandoned. S.S.

Reference.

W. E. BARTHOLOMEW and F. HURIBUT, *The Business Man's English* (The Macmillan Co., New York, 1931).

BUSINESS MANAGER, SCHOOL — See ADMINISTRATION, SCHOOL.

BUSINESS TRAINING. This subject is usually presented in the ninth grade of schoolwork. It was instituted in the early 1920's to give specific junior clerical training because of the recognition that junior workers were no longer receiving positions as bookkeepers and stenographers. The shifting upward of the age of initial employment from 14 to 17 or 18 has eliminated the need for formal vocational business education at the junior level. The subject is now taught as a general orientation course in business to give students a better understanding of the basic facts about business and its functions. While it is generally required only for business students, leaders in business education feel that it should be a universally required subject similar in its purposes to general science, general mathematics, etc.

There are now several hundred thousand students enrolled in business training in the eighth, ninth, or tenth years of school in this country. Business training therefore ranks with shorthand, typewriting, and bookkeeping as one of the most frequently taught business subjects. The course is known under such titles as Elementary Business Training, Junior Business Training, Introduction to Business, Everyday Business, Functions of Business, etc. The modification of the title does not reflect corresponding differentiation of subject matter. (See also: BUSINESS EDUCATION; SECRETARIAL EDUCATION.) H.A.T.

C

C C C — See **CIVILIAN CONSERVATION CORPS, EDUCATIONAL WORK OF.**

CAFETERIA, SCHOOL. The school cafeteria represents an important development of the last twenty years. At the beginning of the twenties very few schools provided special space for lunch room activities. By 1940 few schools were being built without such space. Moreover, the school lunch trend has reached down into the elementary school and even into thousands of one-room rural schools. Often rooms planned for other purposes have been utilized for lunch rooms. The movement gathers momentum year by year.

While there is great variety in plant facilities, cost of lunches, and size of the operating unit, there is fairly general agreement in objectives for school lunch rooms or cafeterias. The movement began, according to its competent historian, Mary DeGarmo Bryan, as charity for the feeding of poor children, developed as a convenient service for pupils and faculty, and finally attained its present status as an indispensable feature of the health and teaching programs for all school children. Its functions now include all of the various services by which its development was marked.

A powerful incentive to expanding school lunch activities came from the provision by the Federal Government of free food from the Surplus Commodities Corporation. This trend toward free school lunches for indigent and undernourished children has moved along with, and in some cases independently of, the general trend toward providing warm, nourishing lunches on a cost basis for all children who wish to avail themselves of the opportunity.

Commonly accepted on all levels of the public school are the following functions for school cafeterias and lunch services:

(1) By providing nourishing food to combat the effects of malnutrition in some of the

children and to maintain in all the children the vigor necessary for school activities.

(2) To provide social training for all pupils.

(3) To correlate teaching with experiences of children which center about food.

(4) To interest the community in the nutritional needs of children and to give parents whatever instruction is possible.

School cafeterias are planned to operate without profit and with some items of overhead, such as space and utilities, paid by school funds. Nourishing lunches are therefore provided at low cost. It is likely that the school lunch movement will continue to gain under the influence of two important trends: (1) the consolidation of school districts which increases the distance between school and home for more pupils, and (2) the growing interest in scientific nutrition during childhood years. (See **LUNCH HOUR ACTIVITIES.**)

J.E.G.

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M. D. BRYAN, *The School Cafeteria* (F. S. Crofts and Co., New York, 1936).

W. G. REEDER, *The Fundamentals of Public School Administration* (The Macmillan Co., New York, 1941).

CAMBRIDGE PLAN—See PROMOTION.

CANADA, EDUCATION IN. Under the British North America Act, which is the Constitution of Canada, the provinces are autonomous in education. One notable exception to that autonomy is the provision that religious minorities in any province be guaranteed the continuance of the rights which they enjoyed in that province at the time at which it entered the Dominion of Canada. Thus there is no single Canadian school system; there are nine distinct systems, one for each province.

The Dominion government has never been entirely free from educational responsibilities: it is responsible for the education of its wards, the Indians; for the schooling of chil-

dren living in the parts of the Dominion which are not included in any province (e.g., the Yukon); and for training for service in the armed forces. During World War II this last responsibility led not only to a great extension of military training, but also to the establishment of "war emergency classes" to prepare workers for war industry. Indeed, the interest of the Dominion government in vocational education is long-standing. It has granted substantial subsidies to encourage agricultural education (1913) and general vocational training (1919). No conditions were imposed upon the provinces which accepted the earlier subsidies; in the later grants, the only stipulation attached was that the province accepting the federal grant must match the amount received by an equal amount from the provincial treasury to be devoted to the same purpose. The depression years saw similarly financed schemes of youth training under Dominion-Provincial auspices. In "war emergency classes", however, the Dominion government not only aided in establishing a specific type of training, but also regulated and controlled that training. A new Vocational Training Coordination Act (1942) empowered the Dominion government to set up and maintain schools, without reference to provincial governments, "to fit persons for employment for any purpose contributing to the conservation or development of the natural resources vested in the Crown in the right of Canada." Clearly the national emergency of World War II and the need for a planned reconstruction program led the Federal government into a direct invasion of a field formerly regarded as reserved for the provinces. The Education Branch of the Dominion Bureau of Statistics continues to do much valuable work in the compilation and publication of educational information.

Despite the existence of distinct provincial school systems, Canadian education is characterized by similarities rather than by diversity. In a typical province, education is entrusted to a department of government, headed by a minister of cabinet rank. He is advised by a staff of employed experts, of whom the chief is styled deputy minister or superintendent of education. The provincial contribution to the cost of education is often surprisingly low; the bulk of the cost is borne by local taxation usually based upon the

assessed value of real property. The chief aim in the distribution of the provincial contribution is to equalize opportunities. The provincial departments of education exercise a high degree of control over courses, textbooks, teachers' qualifications, and supervision.

Rural education presents a persistent problem in a sparsely-settled country like Canada. The one-teacher, ungraded school too often constitutes the child's only opportunity of securing a schooling. Such schools must attempt to offer not only a fairly long elementary course, but, frequently, a secondary course as well,—a course that in the nature of things must be rather attenuated and incomplete. Isolated families, beyond the reach of any schools, are served by travelling teachers; by correspondence courses; and, especially in the western provinces, by radio lessons. Over most of rural Canada, the traditional small school district, with its limitations of resources and of vision, is still the common unit of school administration. Everywhere, however, there are signs of a coming better day. Until 1942 Alberta was the only province to enact legislation reorganizing the whole province into larger school areas. Several other provinces have permissive legislation to encourage the voluntary merging of small districts into more adequate school areas. Nova Scotia and Ontario report substantial progress in this direction; Manitoba has long had many "consolidated" districts, and British Columbia has conducted significant experiments in the amalgamation of school districts. It is common practice to elect *ad hoc* boards of trustees to administer local schools; in several provinces, if these boards fail to act or if they request release from their duties, "official trustees" are appointed by the provincial department of education. This often proves to be a first step toward the complete union of neighboring districts.

All the provinces have overhauled their curricula within recent years. Courses have been multiplied and liberalized; an honest effort has been made to adjust the program to the needs of the child and to integrate the school with the community. The traditional control of secondary school curricula by the universities has been relaxed. External examinations have been reduced in frequency and in importance. Activity methods are empha-

sized. Vocational education has made huge strides; in Ontario one-third of the high school pupils are enrolled in vocational schools; the new intermediate household science schools of Quebec illustrate a general tendency to make education serve the practical needs of everyday life.

I. PROVINCIAL CONTRIBUTIONS TO EDUCATION¹ (1939)

	Provincial + Municipal	Provincial Only
P.E.I.	\$ 449,567	\$ 274,323
N.S.	4,060,235	718,546
N.B.	3,172,135	534,315
Que.	22,165,312	2,376,504
Ont.	48,653,557	7,015,225
Man.	8,023,566	1,172,783
Sask.	9,741,173	2,305,375
Alta.	10,325,334	1,809,392
B.C.	9,731,772	2,722,702

¹Taken from K. F. Argue: "A Framework for Appraising the Financing of Education in the Canadian Provinces", A Report Submitted to the Canadian Council for Education Research, 1942, pp. 41-45.

II. ABILITY TO SUPPORT EDUCATION² (Inequality of Tax-paying Ability)

Province	1938 National Income ³ per Census Child, 5-19	Province	1938 National Income ³ per Pupil in A.D.A.
Saskatchewan	\$ 792.90	Saskatchewan	\$1,518.8
P.E.I.	816.25	New Brunswick	1,657.3
New Brunswick	828.66	P.E.I.	1,718.9
Nova Scotia	961.67	Nova Scotia	1,748.2
Quebec	1,010.65	Quebec	1,880.6
Alberta	\$1,123.06	Alberta	1,938.7
Manitoba	1,206.97	Manitoba	2,247.6
Ontario	1,784.80	Ontario	2,862.7
B.C.	2,120.02	B.C.	3,461.8

²Taken from K. F. Argue: "A Framework for Appraising the Financing of Education in the Canadian Provinces", pp. 23-24.

³Canada Year Book, 1941, p. 797.

III. ENROLLMENT IN SCHOOLS⁴ 1940

Elementary Schools	1,765,358
Secondary Schools	364,401

⁴Totals calculated from "Comparative Table of the Distribution of Pupils by Grades and Sex in Publicly-Controlled Schools in the Different Provinces, Spring 1940" in Dominion Bureau of Statistics, Biennial Survey of Education in Canada, 1938-40, p. 48.

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I. L. KANDEL (ed.), *Educational Yearbook of the International Institute* (Teachers College, Columbia University, New York), *Yearbook 1924*: W. E. MACPHERSON: "Canada". *Yearbook 1936*: J. G. ALTHOUSE: "Canada". *Yearbook 1938*: E. A. HARDY, V. K. GNEER: "Canada". *Yearbook 1940*: E. A. CORBETT: "Canada".

The School Magazine (Toronto): 1. January 1941 Supplement: *Reports on Educational Progress, Research, and Experiments in Canada*, Vol. XXIX, No. 5, pp. 409-458; 2. June 1941 Supplement: *Reports on Educational Progress in Canada and Newfoundland, 1940-41*, Vol. XXIX, No. 10, pp. 907-930; 3. June 1942 Supplement: *Reports on Educational Progress, Experiments, and Research in Canada*, Vol. XXX, pp. 854-928.

CANAL ZONE, EDUCATION IN—See UNITED STATES TERRITORIES AND OUTLYING POSSESSIONS, EDUCATION IN.

CAPITAL OUTLAY — See FINANCE, SCHOOL.

CARDINAL PRINCIPLES OF SECONDARY EDUCATION. The cardinal principles of secondary education represent a declaration of objectives designed to emphasize the fact that "complete living" rather than college admission or mental discipline is the end of education. The principles are seven in number: "health, command of fundamental processes, worthy home membership, vocation, citizenship, worthy use of leisure, and ethical character". They were formulated in 1918 by the Commission on the Reorganization of Secondary Education and represent the first attempt by an authoritative body of educators to apply this philosophy of "complete living" to the secondary school.

These principles have been widely and frequently referred to in educational circles but they have had little direct effect on school practice. This is no doubt due to the fact that they are a vague "disorderly miscellany." They fail to present divisions of "complete living" that serve as tangible focal points around which instructional practice can revolve. (See SNEDDEN in the references below.)

They do, however, represent a contribution to education; for in an attempt to improve upon them much thought and effort has been expended, thus focussing attention on the validity of the "school as preparation for living" objective.

References.

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H. G. ESPY, *The Public Secondary School* (Houghton Mifflin Co., New York, 1939).

D. SNEDDEN, "Cardinal Principles of Secondary Education", *School and Society*, IX, 517-27, May 3, 1919.

J.G.A.

J.B.

CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING — See FOUNDATIONS, PHILANTHROPIC.

CARTOON GRAPHS — See GRAPHIC METHODS.

CASE STUDY. A method of using specialized techniques for gathering information, determining difficulties, and planning and effecting treatment for the problems of an individual needing help. This method makes the individual's needs the center of the social workers' concern, and the individual's rehabilitation the objective of all their efforts.

Case work, often called social case work, is the means by which the objective is attained. It includes all of those processes which develop personality through adjustments, consciously and unconsciously effected, between the person needing help and his social environment. If social case work is to be effective, the individual's needs must determine not only the objective but the method of treatment.

The factors responsible for the person's problem are internal as well as external. The individual's adjustment depends not only upon environmental, economic, and physical factors but also upon his emotional attitudes, the degree of emotional stability, the interplay of emotional factors between himself and the people in his environment, and his feelings about himself and his situation.

When the individual's problem has been surveyed and accepted as one amenable to social case work treatment, this treatment is initiated from the earliest contact of the client with the social worker, that is, in the interview situation. Formerly, it was thought necessary to obtain a complete history of the client's life, in its personal, family, educational, occupational, and other phases, before treatment was begun. It is now recognized that history taking as an entity must be discarded, and that archaic designations of study, diagnosis, and service or treatment must be interpreted not as separate phases, but as one intermingling, continuous process. Treatment begins in the first interview; as the worker learns something about the client, she is at the same time stimulating the latter to seek out the solution of his problem.

As the social worker learns more about the

client and the nature of his maladjustment and needs, she may obtain the cooperation of a psychologist to determine the client's abilities and potentialities, or, in cases involving severe emotional disturbances, she may consult with a psychiatrist for an evaluation of the client's emotional difficulties, inasmuch as case work deals with social problems rather than with those of psychopathology.

The method of the case study has had considerable influence on the procedures followed by child guidance clinics (*q.v.*) in the study and treatment of children with behavior problems. This procedure implies that each child presents a distinct problem and that he must be studied as an individual if the clinician is to understand the physical, psychological, social, educational, and other factors which have contributed to the child's difficulties in adjustment. The case study implies, too, that the child must be seen as a total personality, with emphasis placed on his total needs and adjustments rather than on the specific incidents which may have led to his referral to the clinic. Since the treatment is based on the facts which come to light during the process of working with the child and his environment, it can be planned only on an individual basis. The case study approach makes it difficult, if not impossible, to think of treatment patterns which are appropriate for the truant, the delinquent, the feeding problem, etc. Instead, it suggests that treatment is most likely to be successful when it accepts the child as the center of interest and then concerns itself with understanding his problems so thoroughly that he may be helped to develop more satisfactory means of solving his problems.

The case study method, in a modified form, can be utilized by teachers in the study of a maladjusted child, not so much for the purpose of treatment but in order to understand the factors influencing the child's behavior, and, in turn, to modify the school's handling of the child. (See MENTAL HYGIENE; SOCIAL SERVICE ACTIVITIES IN SCHOOLS.)

References. G.M.A. and M.S.Q.

R. H. KURTZ (ed.), *Social Work Year Book 1939* (Russell Sage Foundation, New York, 1939).

V. ROBINSON, *A Changing Psychology in Social Case Work* (University of North Carolina Press, Chapel Hill, 1930).

E. F. YOUNG, *The New Social Worker's Dictionary* (Social Work Technique, Los Angeles, 1939).

CASE WORK IN SCHOOLS—See CASE STUDY; SOCIAL SERVICE ACTIVITIES IN SCHOOLS.

CATECHETICAL METHOD. The *Catechetical Method* is a method of teaching that proceeds on the basis of question and answer, both printed for the student. The term comes from the Greek *Katekhetes*, an oral teacher, as Socrates was. It has survived in the typical church catechism but otherwise is mainly of historical interest. When Alcuin undertook the instruction of Pepin, the son of Charlemagne, he prepared a lengthy catechism for him, exemplified by the following excerpt:

Q. What is writing. A. The custodian of history.

Q. What is speech? A. The interpretation of the soul.

Q. What produces speech? A. The tongue. The main objection to the catechetical method as a teaching procedure is that it puts a premium on the exact reproduction of set answers, and therefore exercises little but rote memory. The formal recitation is an outgrowth of this method. The following excerpt from a nineteenth century textbook typifies this application:

Q. What is the planet, on which we live, called? A. It is called the Earth.

Q. What is the shape of the Earth? A. It is very nearly round.

Q. Do we live on the outside or the inside of the Earth? A. On the outside.

The catechetical method has little place in the modern school, which belittles rote memory and emphasizes instead the student's ability to use his factual background as an aid in solving problems. W.R.

CATHOLIC EDUCATION—See ROMAN CATHOLIC EDUCATION.

CATHOLIC PAROCHIAL SCHOOL. A Catholic parochial school serves the children of a parish, is supported by parish funds, and is under the immediate control of the pastor. As a unit in the diocesan system, the school is under the jurisdiction of the bishop of the diocese. It is a day school and is usually coeducational. The erection and maintenance of such a school in each parish was required by a decree of the Third Plenary Council of Baltimore, in 1884, in keeping with the Catholic belief that secular and re-

ligious instruction should not be dissociated.

The Catholic parent is required by Church law to send his child to a Catholic school to secure a Christian education. Instruction in secular and religious subjects is cared for by members of religious orders. The program of studies parallels that of the public school, except for intensive instruction in the tenets and practices of the Church. Content and special subject requirements, as outlined in State law, are rigidly observed in each diocese. The entire program is regulated by the Christian spirit, so that "Religion may be in very truth the foundation and crown of the youth's entire training." In short, the task of the parochial school is to develop Christian character.

There are 7,056 parochial schools in the United States (1940). Units are in operation in each of the 112 dioceses and in every state. Sixty thousand teachers care for approximately 2,000,000 pupils. One hundred and forty religious orders supply teachers. Fifty-five per cent of all Catholic children of elementary school age are registered in parochial schools. (See CATHOLIC EDUCATION.)

F.M.C.

CAUSAL METHOD (Research)—See RESEARCH METHODS IN EDUCATION.

CAUSE AND EFFECT TEST—See OBJECTIVE TESTS AND EXAMINATIONS.

CENSUS, SCHOOL. The school census involves the counting of all children of given ages (specified by law as *census age*), the recording of certain data about these children, and the filing of these data for permanent use.

Originally, hired enumerators visited each home in the community and listed on sheets the names of children of census ages, their ages, dates of birth, addresses, names of parents, and similar data. These data were tabulated for reports to the state department of education and no further use was made of them.

Trends at present aim at maintaining a permanent and continuous census. Data from the enumeration are recorded on cards; these cards are filed either alphabetically or by streets, or both. Each card may have data for an entire family, in which case the census is known as a family census. The more

usual procedure is to have each card contain data for only one child.

When an attempt is made constantly to keep the data corrected on the census cards (individual or family), a continuous census is had; this act of correction involves not only keeping the data on the cards up-to-date but having cards in the file for all children of census age who, at a given moment, live in the school district.

Devices for keeping the census files up-to-date are: (a) match census cards with enrollment cards each semester; (b) report all pupil transfers to the census office; (c) organize a "civic service league" in which a pupil is made responsible, in each city block, for reporting all changes of residence; (d) secure reports on change of residence from the police, operators of moving vans, attendance workers, bureau of vital statistics, and similar agencies; and (e) plan a house-to-house enumeration every five years.

Census ages still vary greatly among the states. Originally they tended to range from 5, 6 or 7 to 21 years of age, since the census was used chiefly as a means of distributing certain state school funds. Present day uses are much broader in scope and the demand is being made for a continuous census from birth to at least 18 and to possibly 21 years of age.

A continuous census from birth to 18 or 21 years of age makes possible the following advantages: (a) a more adequate school building program, (b) more effective year by year planning of the educational program to care for gains or losses in enrollment, (c) more effective enforcement of school attendance regulations, (d) a guard against losing track of families that need financial aid in order to care properly for their children.

A.O.H.

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A. O. HECK, *Administration of Pupil Personnel* (Ginn and Co., New York, 1929).

A. O. HECK, "School Census and The New Social Responsibility", *The American School Board Journal*, LXXXIX: 31-32; July, 1934.

W. G. REEDER, *The Fundamentals of Public School Administration* (The Macmillan Co., New York, 1941).

CENTRAL AMERICA, EDUCATION IN. *The Ideals.* Education in the Central American republics has passed through a three-fold process. The period of colonization

was characterized by the hegemony of religious congregations in educational matters. The period of struggle for independence was one of unsystematic education, the product of private initiative. The period of later political organization has been characterized by the tendency to convert education into an essential service and function of the state.

In its pedagogic aspect, this process signifies the transition from the dogmatic to the activity, rational school. In its social aspect, it signifies the recognition of the right of all to culture and to an education; no longer is this a privilege of the ruling classes alone. In its administrative aspect, it signifies the progressive control of educational services by the state through a centralizing system.

Nevertheless, private schools are permitted and are even subsidized by the governments, provided they help make up the deficit of the national schools and submit to official inspection.

All of these republics accept an ideal of education frankly democratic and have implanted, without violence, some principles which in other countries have been the result of violence and struggle. Equal educational opportunities for all races and social classes, compulsory and free education, and movements toward secularism and co-education can serve as examples. Nevertheless, in Nicaragua teaching is largely in the hands of the Catholic fathers, and neither in Haiti nor in the Dominican Republic is co-education permitted.

The Methods. Dogmatism, verbalism, and the passive attitude of the student are in general being replaced by the procedures of a comprehensive and active education. But in many cases the desire to modernize methods and techniques, with poor or inadequate means and without the previous preparation of proper personnel, has resulted in confused situations in which the old was abandoned without being able to accomplish the new. Almost everywhere newer systems—the Decroly system, the Winnetka plan, the Dalton plan, center of interest procedures—have been tried. Sometimes appreciable results were obtained; at other times the failure of these attempts was attributed to the limitations of the new methods when actually inability or the haste with which these attempts were made was at fault.

CENTRAL AMERICA, EDUCATION IN

In this trend to modernize education *Costa Rica* has distinguished itself by introducing new methods very gradually, *Guatemala* by being the first to try them in experimental schools before prescribing them for the entire system, and *Panama* by calling biennial conferences for the discussion of the new techniques.

Organization and Institutions. All the Central American republics have an office of Secretary of Education, which assumes the direction, administration, and inspection of public education.

Costa Rica, which prides itself on having more teachers than soldiers, promulgated in 1937 its present fundamental law of instruction, which embraces the area from pre-school education to high school and professional education. A central commission is in charge of carrying out the law and of defining the activities of educational institutions.

There are three kinds of elementary schools, the traditional, the active, and the vitalized (*las tradicionales, las activas y las vitalizadas*). Secondary education is arranged in two divisions, one for the development of general culture and the other for professional education. Higher education is given in the Schools of Law, Medicine and Obstetrics, Pharmacy, Commerce, Engineering, and Architecture.

In 1940 *Costa Rica* used for public instruction 21 per cent of the general funds of the state, and brought to its schools 11½ per cent of the population.

Guatemala promulgated its *Organic Law of Public Instruction* in 1937, with the principal purpose of extending primary culture. Schools were founded in centers of population where there were more than ten children, and in barracks, prisons, and in public institutions. Industrialists and large landowners were required to maintain schools in factories and on estates. Secondary education produces bachelors in science and letters who are prepared for primary teaching and for entrance into the University. The law of 1937 added the Faculty of Economic Sciences to the University.

Guatemala allots 12½ per cent of its general state funds to education, but not more than 5½ per cent of its population attends the institutions of learning.

El Salvador is waging a fight against

the disproportion between its scanty means and its relatively large population and is concentrating its efforts toward the extinction of illiteracy. It has organized traveling instructors as one way of achieving this aim.

Its educational system is organized into *Jardines de la Infancia* (Kindergartens) for children from 3 to 6, primary and higher elementary schools, secondary schools, and rudimentary schools. Secondary education is almost completely in the hands of private institutions. For the preparation of teachers there is a normal school for each sex.

Nicaragua has separated administrative from technical direction. *The Secretariat of Education* has kept for itself the administration and inspection, and has delegated technical authority to the *Chiefs of Services* and *Inspectors*. Police officials and port officers assist in the fulfillment of educational obligations.

Secondary education is in its infancy and although the preparation of teachers requires four courses, the only special studies offered are those of theoretical and practical pedagogy. The majority of the teachers are prepared in the pedagogical institute of the *Hermanos de las Escuelas Cristianas* (Brothers of Christian Schools).

Nicaragua appropriates 14 per cent of its state funds to education. This amount is supplemented by a system of taxes and fines administered by the *Juntas* of Fathers.

Panama's Office of the Secretary of Education is in charge of administration. Pedagogical matters are under the jurisdiction of the District Inspectors. The division of General Inspection established in the secretariat unifies the work of the inspectors. The government made effective use of the opportunity to contract foreign teachers and to send students to other countries.

Elementary education, regulated by a special decree, is almost completely in the hands of the state. On the other hand, secondary and professional education are carried on in private schools as numerous as those of the government.

Panama allots 16 per cent of its budget to education and approximately 12½ per cent of its population attends its schools.

Cuba is the educationally least centralized of this group. The Department of Education has almost no other duty than that of admin-

istration of a general character. Technical matters are entrusted to a Board of Superintendents, which unifies the work of the local school officials. Each municipality has a Board of Education which directs its schools, levies its funds, appoints its teachers, exercises disciplinary functions, and provides buildings and materials.

There is an intense modernizing movement, influenced partly by the United States and partly by Europe through influential publications in English and Spanish. Examples of these influences are the *Crèches*, very similar to the Belgian model, the *Kindergartens* and the higher primary schools, similar respectively to the nursery schools and the junior high schools of the United States. For higher professional studies there is the autonomous University of Havana and its affiliated Institutes of Languages, Commerce, and Pedagogy, and the Technical Industrial Schools, which are the best endowed institutions of learning in the country.

Twenty per cent of the budget is allotted to education and 12 per cent of the population attends school. Nevertheless, private instruction performs an essential service, since the majority of secondary and vocational schools, which are very varied, are private institutions.

Haiti has a very simple system. The territory is divided into areas directed by inspectors responsible to the central administration. Although Haiti recently created Normal Schools, the only requirements for teaching are an aptitude freely acquired and good conduct.

The state spends 10 per cent of its budget on education, and but 5 per cent of its population attends its schools.

Haiti is at present devoting considerable attention to the reconstruction of education at all levels, including vocational education, and in the past two years (1941, 1942) has sent a large number of its educational personnel to the United States for specialized preparation.

The Dominican Republic controls education (with the exception of the university) through a *Consejo Nacional de Educación* (National Board of Education) which has very wide powers limited only by the Constitution and the general laws of the country. The office of the *Secretary of Education* func-

tions as the executive and inspection agency. The country is divided into departments, at the head of which are the *Intendentes*, and into educational districts in the control of *Inspectores*. There is in addition a *Technical Office* accessory to the office of the Secretary.

The schools, no matter of what grade, can be official, i.e., state controlled; or semi-official; i.e., state subsidized. The private schools are maintained by their own funds; they are, however, subject to inspection.

Primary instruction, almost completely under the state, is given in rudimentary, primary elementary, and primary secondary schools. Secondary education and teacher education are given in normal schools. Vocational education is given in various special schools. Higher and professional studies are conducted in the autonomous University of Santo Domingo, which recently created a faculty of philosophy for studies essentially theoretical and cultural.

Eleven percent of the budget is spent on education. F.S.

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CENTRAL TENDENCY. Educational data are frequently obtained as a set of scores, ages, or other measures for a group of pupils. It is often desirable to obtain a single measure which may be used to represent such a set of measures a typical or representative measure, the statistical name for which is *central tendency* or *average*. There are three such averages commonly used in treating educational data: the *arithmetical mean* (called the *average* in nonstatistical parlance), the *median*, and the *mode*. The most familiar measure of central tendency is the arithmetic mean, which is simply the sum of the individual measures divided by their number. If the measures are arranged in order from highest to lowest, there is a point such that half of the measures are above it and half are below. This point is called the median. Ordinarily one of the measures will occur with a greater frequency than any of the others; this is the mode.

When dealing with a set of ungrouped scores, such as the weights of fifteen children, each of these three measures of central ten-

CENTRAL TENDENCY

dency is easily determined in accordance with the above definitions. To indicate how measures of central tendency are computed when they are grouped in a frequency table, we shall illustrate the use of these measures in terms of the distribution of teachers' salaries in the high school of a small city. The f (frequency) stands for the number of teachers in the school receiving salaries somewhere within the interval range indicated to the left.

Salaries in \$'s	f
3,500—3,999	3
3,000—3,499	0
2,500—2,999	3
2,000—2,499	6
1,500—1,999	18
1,000—1,499	6
<hr/> TOTAL	<hr/> 36

The mode here is in the \$1,500 to \$1,999 interval and is taken to be best represented by the mid-point of the interval, \$1,750. The median is at a point which leaves 18 of the salaries below it and the other 18 above it. When the actual salaries are spread out seriatim, this point can be located precisely; but in a frequency distribution it must be located roughly by interpolation. It is $12/18$ or $2/3$ of the interval length (\$500) above the \$1,000-\$1,499 level, and so is \$1,833.33. The mean is obtained by multiplying the values of the mid-points of the several intervals by their respective frequencies, summing these products, and dividing by N (the total number of persons). Its value here is \$2,000.

The explanations of the three measures of central tendency indicate that they do not mean the same thing and would normally not be used interchangeably, although all three satisfy the basic requirement of being representative of a group of scores. Though it is relatively easy for any person to learn to compute these measures of central tendency, especially with the aid of the specific instructions contained in all standard textbooks on educational statistics, it is more difficult to develop the degree of understanding that leads to the selection of the most appropriate measure to be used in a given instance. The nature of the situation indicates which measure of central tendency should be computed. Generally there is no sound reason for computing more than one measure of central tendency for the same group of measures.

If it is desired to use a measure of central tendency in the computation of which all the measures have contributed, the arithmetic mean would be the measure to use. Thus, in the illustration cited above, the mean salary of \$2,000 was computed on the basis of the salaries earned by all the teachers. If it is desired to find the measure that an individual would be most likely to get, the mode should be used.

The mean is the most reliable (See RELIABILITY) of the common measures of central tendency, and is customarily used in refined statistical procedures. The mean is a mathematical quantity in that it is the result of mathematical processes and it is subject to mathematical processes. For example, the mean of combined distributions can be computed accurately by mathematical processes from the means of the several distributions. The median and mode are not the result of mathematical processes, nor are they subject to them. But if the distribution is skew, or if there are a few scores that scatter widely at the upper or lower end of the distribution, the mean may give a distorted picture of the situation. Thus, the three high salaries in the distribution reproduced above affect the mean to a marked extent. Where there are such extreme scores at only one end of the distribution, it may be preferable to use the median. Moreover, the median may be used advantageously when it is not convenient or feasible actually to measure the extreme cases, for the value of the median turns only on a knowledge of the number of variates in the sample and a knowledge of the quantitative values of those near the middle of the distribution. The median is probably more meaningful for typical school situations. It may be preferable for such situations also because it is easier to compute, and the typical school use of data calls for less accuracy than do research needs. The mode is useful, especially when speaking to laymen, to give a vivid picture of the prevailing tendency in the scores. Thus, to say that more teachers in a given high school get salaries of \$1,800 than any other one salary amount (that is, to say that the modal salary is \$1,800) may be the most illuminating way in which the salary situation can be described to laymen.

Although a measure of central tendency

typifies a group of measures, by itself it cannot give an adequate picture of the group of measures. For that purpose it must be accompanied by a measure of the extent to which the measures vary from their central tendency. (See VARIABILITY.) C.C.P.

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CENTRALIZATION IN EDUCATION.

Centralization refers to the policy of concentrating the support and control of education in the hands of the central government of a state or nation. The opposite policy of leaving the support and control of education to local authorities is called *decentralization*. The tendency in most countries of the world is toward a highly centralized organization of education with a hierarchy or military gradation of administration and supervision. The educational system is invariably headed by a national or state chief school officer with authority delegated downward through minor officials. In practically all countries, educational organization is centralized in a minister of education who is a member of the government cabinet. France provided a good example of a completely centralized system of education with a Minister of National Education at the head of the entire system. One weakness of a highly centralized system of education was exemplified in France where frequent changes in the ministry might result in radical changes in educational policy. Every school regulation in Germany from the establishment of the first Prussian Ministry of Education down to the present time has been in the direction of a more thoroughly centralized educational system. The Third Reich, under Hitler, completely centralized education in the hands of the Ministry of Education in Berlin, as a means of upholding the government, preserving national culture, and maintaining the new industrial, economic, and military new order.

In the United States, there has never been

an organization of the school system on a strongly centralized federal basis, and even in the states strong centralized state school organizations have not been substituted completely for local autonomy, although there have been definite trends toward greater state centralization. For many years, educational leaders and organizations have been advocating the establishment of a Federal Department of Education with a secretary who is a member of the President's cabinet. There have been suggestions of a National Board of Education which would determine nationwide policies and practices in education. In the various states the trend is definitely in the direction of state support and control of the public schools.

Centralization has both its advantages and disadvantages. The first advantage is administrative efficiency, through increased economy of operation, more careful planning and co-ordination of policy, and greater utilization of expert services. A second advantage is the equalization of benefit which standardization may accomplish. The increased mobility of population makes it necessary for the schools to standardize the training of pupils as citizens, not merely of the local community, but of the state, the nation, and even the world. A third advantage arises from the possibility of sharing widely the benefits that come from concentration of wealth in certain areas. Some communities are financially unable to provide acceptable school programs; other communities have more than enough. Centralized responsibility for financing the educational program will provide greater equality of educational opportunity.

But centralization also brings serious disadvantages. Most important is the waning of popular interest, and the stifling of local initiative, thus curtailing the freedom to experiment in adapting education to local needs and conditions. Increased centralized support may result in a decreased sense of responsibility for education on the part of the local tax-payers. Centralization tends to cause the people to demand more and more educational services from the government without realizing that they must in the end pay the bill. Finally, under centralized administration, any error or mistake has far-reaching consequences, and undesirable political manipulation may affect all education

seriously, particularly when the administration desires to perpetuate itself.

Probably neither complete centralization nor complete decentralization is the solution of the problem. Perhaps the major problem of the administration of American education is not to decide at which level of government complete responsibility for all education will be placed, but to study educational needs thoroughly and then determine which level of government, local, state, or national, can best carry on particular educational functions.

E.H.W.

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CENTRALIZED SCHOOL. Definition.

The term centralized school may be applied to a large school plant housing a comparatively large number of children and usually organized as an elementary, junior high, and senior high school. The centralized school is often the result of the consolidation of school districts and the abandonment of small schools. The term consolidation or consolidated school (*q.v.*) may be applied to the reorganization and enlargement of administrative units and attendance units; whereas the centralized school is a school conveniently located in a large attendance unit. It frequently involves the transportation of children, especially in rural areas.

Values and Limitations. The values of centralized schools are largely inherent in the types of programs made possible when relatively large numbers of children are brought together in one school building. This is perhaps more apparent in the upper than in the lower grades. It is possible in such schools to provide for the special services of health, recreation, guidance, etc., to an extent that would not be possible in smaller decentralized schools. The limitations of centralized schools have become apparent with the problem inherent in increased programs of trans-

portation. There is some evidence that in certain sections of the country an attempt has been made to centralize schools more than necessary, and that the various groups of children might be as well provided for in smaller elementary schools and in centralized high schools.

W.C.R.

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CEREBROSPINAL NERVOUS SYSTEM—See NERVOUS SYSTEM.

CERTIFICATION OF TEACHERS—See TEACHERS, CERTIFICATION OF.

CHAPEL EXERCISES—See ASSEMBLY, SCHOOL.

CHARACTER AND PERSONALITY TESTS. There are many reasons, both theoretical and immediately practical, why adequate tests of character and personality would be a most desirable contribution to human welfare. Such tests would force the issue of character education (*q.v.*) by making it imperative that the results of character education be clearly demonstrated. The value of such tests to educators would be inestimable in aiding them to evaluate their efforts. Adequate tests of character and personality would make wise vocational guidance much more possible, since qualities of personality are so important in determining vocational choice and adjustment. In the development of such tests theories of personality would be clarified. The experimental values of such tests are apparent. In short, if we could have tests of growth in character and personality that truly mirrored such growth, that could be depended upon and that were practicable of administration, a contribution of great magnitude would have been made to education.

Few, if any, educators or psychologists contend that we now have such tests. There are a multitude of tests and rating devices which purport to measure *aspects* of personality. The volume of production of such tests is suggested by the fact that the 1940 *Mental Measurements Yearbook* lists sixty-nine tests

in this field, although not all of these were produced in the two-year period to which the *Yearbook* is chiefly devoted. That confidence in the tests so far developed may have weakened is suggested by a recent publication of the American Educational Research Association which reports that "notwithstanding continued activity in the production of tests of personality and character . . . there seems to be a decline in the application of tests in this area." (l. p. 7)

Skepticism about the usefulness of current personality and character tests rises from a number of sources. The most serious basis of criticism springs from the fact that the proper evaluation of personality must involve the measurement of the whole person's reaction to situations. This reaction includes the person's inner feelings as well as his overt behavior. Faced with a task of this magnitude, most test makers have resorted to measuring only aspects of the person's behavior, and even to measuring aspects of behavior in closely controlled and often very artificial situations. How difficult it is to put together these measurements of aspects of personality may be seen by selecting, let us say, six personality tests of various sorts, securing the results, and then trying to put the various results together into a picture of the person. If the investigator has a vital interest in the person in question (perhaps is trying to counsel him), he will probably be impressed by several facts. First, that a battery of the very best tests still does not yield all the necessary facts about a person. Second, that most of the tests depend upon self-reporting by the subject, thus leaving one to wonder how well we can understand the person from what he tells us about himself. Third, that the test makers have usually been vague about the validation of their tests, and only fairly successful in showing that the subject will react to the test consistently from time to time. Fourth, that almost none of the tests really measures behavior in like-like situations.

The tests of personality and character that are available have been classified in many different ways. A simple classification based on what the tests purport to measure is as follows:

1. Measures of environment. While not tests of personality as such, instruments de-

signed to provide accurate information about the economic and cultural background of the person are useful in understanding the person. One of the best known and most widely used measures of environment is the Sims Score Card.¹⁰

2. Measures of behavior, under controlled and uncontrolled conditions. Such measures include (1) tests to measure the extent to which a child will cheat under a given teacher; e.g., the Character Education Inquiry Tests of Honesty¹¹; (2) behavior rating scales that require careful checks as to particular behavior manifestations like the Haggerty-Olson-Wickman Scales¹²; and (3) the more recent projective methods which seek to interpret motives, attitudes and needs by the analysis of the drawings, play, dramatic activities, voice, gestures, and even handwriting of the person. The Rorschach (*q.v.*) "inkblot" technic is one of the most novel and widely used of the projective methods. (l, pp. 84-87)¹³

3. Measures of ethical knowledge. These abound in number, are fairly easy to construct, and have all too often been called "attitudes" tests. One of the better moral knowledge tests is that developed by the Character Education Inquiry.¹⁴

4. Measures of attitudes and opinions. These have, for the most part, been paper and pencil tests which ask the person to represent his attitude by checking alternative solutions to ethical issues. Obviously, the chance of misrepresentation is great. Probably attitudes can more accurately be inferred from carefully observed behavior. An important and useful series of attitudes tests covering specific fields are those of Thurstone.¹⁵

5. Measures of "general" or "emotional" adjustment. This has been a type of test in the production of which test makers have been very prolific. The tests are usually of the self-reporting sort, the subject's statement of how he feels about many things being interpreted to reveal his adjustment to life's conditions. So much depends upon the honesty of the subjects' report that the use of such tests is seriously limited. The Bell¹⁶ adjustment inventory is one of the more widely used instruments of this sort.

6. Measures of interests. Such tests suffer from the handicap of self-reporting methods

but can yield helpful information for the guidance of the individual and for determining dominant interests in a group in planning educational programs. The Strong Vocational Interest Blank,¹⁷ for example, has proved useful in guidance work.

7. Measures of "the whole person." There are really no such measures, and may never be—certainly no single, simple measure. However, the case method, by means of which all that can be learned about a person is brought together in systematic form, is no doubt the most useful approach to the study of an individual. (7, pp. 267 ff.) (See also ANECDOTAL BEHAVIOR JOURNAL; CASE STUDY.)

In spite of all the difficulties in the measurement of personality and character, a careful worker, using carefully selected tests, can learn much more about a subject than would be possible by the traditional method of "general impressions." Constant attention to the fact that a person is a person, and not the sum of a number of qualities (no matter how well defined these may be), will keep the educational or psychological worker from being misled by fragmentary measurement of personality and character. Recognition of the fact that all measurement is the refinement of observation will also help to guide the worker in the selection of instruments of measurement.

G.E.H.

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CHARACTER EDUCATION. There is almost universal acceptance of the belief that education should achieve moral outcomes. "Character" as an end of education is included in most statements of educational aims. This has always been true. What character is, what its manifestations should be in conduct, how good character may be fostered, what-kind of educational plan will most surely lead to the best character development—upon such questions there is much disagreement, confusion, and uncertainty.

The most prevalent concept of character is that it is an inseparable quality of personality, that *character is personality evaluated according to the moral demands of a society*. If character is the expression of personality in those aspects of living that have moral or ethical significance, then "character education" is any effort to improve the moral quality of human conduct.

The objectives of character education will vary with the ethical codes of the society in question. In American democracy character has commonly been judged by a two-fold test:

First, does the person in question live in accordance with the best interests of the greatest number? This is the social test. It expresses the demand that education produce

good citizens. Democracy requires not only that her citizens be enlightened, but also that they be men and women of good will.

Second, does the person in question live happily, is he well adjusted to life's conditions and demands? This is the personal test. Democracy values human personality. Education has not achieved its goals unless the educated are happily adjusted persons.

Under these two related goals there may be classified numerous specific ethical aims of education. The Tenth Yearbook of the Department of Superintendence of the National Education Association⁴ has enumerated many of these aims. When an effort is made to be specific about the objectives of character education difficulties arise. One of the most persistent difficulties involves individual freedom of action versus social compulsion, discipline, and control. There can be no doubt that, despite a growing tendency to stress the development of individual freedom of moral choice, character education remains in practice chiefly an effort to get the child to accept in conduct the moral code of the group into which he is born. This is especially true of the young child. However, a distinct advance in character education in the past few decades is the recognition that the self-control and self-determination we expect in the adult comes through a long process of education and that opportunities for freedom of choice should begin in childhood.

The methods of character education naturally tend to conform to the concept of character and the objectives of character education employed by the educator. This is clearly seen in educational practice. Knowledge of the right was for so long regarded as a paramount requisite of good character, that the teaching of moral principles has long been a chief method of character education. This was consistent with the "knowledge is power" philosophy of education. With the increased concern over the evident lack of relation between knowledge and conduct, character education has shifted in method to conduct-centered approaches.

Efforts at character education that begin with or stress the inculcation of ethical knowledge have commonly been called the "direct method" of character education. Efforts which stress conduct in life-like situations, the development of attitudes and habits

through practice, have usually been called the "indirect method". This distinction is artificial and has led to much needless discussion. Modern psychology and educational experience has demonstrated the validity of the "learning to do by doing" principle, especially when such emotionalized results as attitudes and ideals are sought. As a result, modern character education has tended to draw away from formal lectures and sermonizing and to seek the achievement of an intellectual basis for good conduct through discussion of live moral issues closely related to the life of the child. Conduct problem cases with the "what would you have done" challenge have proved useful in evaluating both the experience of others and one's own related experiences. Similarly, problems of conduct that arise within the school or in the community are utilized as content for discussion. There is ample evidence that moral knowledge can be taught, but that its effect is slight unless it is taught with opportunity for practice. (See JONES³.) Greater opportunity for such practice is found in the newer educational programs that are evolving in the modern school.

The evaluation of character education has lagged because of the inadequacy of available tests of conduct, attitudes, and other aspects of character. There is general agreement among educators that the ultimate test of education is the improved conduct of the educated. But to measure conduct changes as complex as those involved in such traits as fair play, openmindedness, honesty, and the like, is obviously a task running far beyond the scope of ordinary paper-and-pencil tests. That schools attempt it is evidenced by the fact that school report cards, almost without exception in the elementary schools, and frequently in secondary schools, carry teachers' evaluations of a large variety of character traits. (See CHARACTER AND PERSONALITY TESTS.)

Character education should be related to the total educational effort. It has already been pointed out that character cannot be educated apart from the whole personality. This suggests the need for regarding every aspect of education as having moral potentialities. That there is some doubt that an educational program will of necessity achieve character ends is shown by the fact that sev-

CHEATING — CHECK LIST

eral states have laws requiring that moral instruction and character education be conducted in the schools. Religious educators and church leaders have frequently questioned the adequacy of secular character education and insisted that character comes chiefly through religious experience and training. Another significant problem is involved in the character-educating influence of such potent agencies as the radio, the motion picture, the press, commercial amusements and the like. How the school can cooperate with the home in developing the child's character is another phase of the problem that deserves more attention. It seems clear that the social well-being of a democracy could most surely be maintained by a better coordination of the efforts and influence of the large variety of character-forming agencies to which the child is subjected.

G.E.H.

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CHEATING. Cheating may be defined as the attempt an individual makes to attain success by unfair methods. In school, cheating usually takes the form of giving or receiving help on tests or examinations, cribbing, or turning in written work done by another. Investigations show that the home is the most important factor in conditioning attitudes toward honesty, also that cheating is more prevalent among dull persons than among the brighter or average ones. It may be due to many causes, both social and individual. Conflicting social standards in the home, school, and community, and the immature attitude that unfair methods of achieving success are all right if undetected, undoubtedly are responsible for much dishonesty, as are extreme selfishness on the part of the offender, inability to face possible failure, and desire for power and recognition. Undue emphasis upon marks and grades; the overstimulation of competition; uninteresting curricula; and stern, unjust, or careless teachers also promote dishonesty.

Cheating is sometimes symptomatic of a child's emotional maladjustment or conflict, and as such is far more significant than the teacher may realize. There are even some children who cheat in such a manner that detection cannot possibly be avoided; such children may be using cheating as a device to incur punishment in response to a psychological need. Where cheating results from causes such as this the problem is one that calls for treatment by the psychiatrist or psychologist—not by the teacher.

Fortunately, most instances of dishonesty have no such complex background. Teachers have found the following techniques to be effective in dealing with the common problems arising from cheating: attaching social approval to honest rather than to dishonest behavior; associating dishonesty with unpleasantness; teaching the child to realize that some failure in life is inevitable and to face such failure as a problem to be solved rather than to be evaded; adapting tasks to the child's needs, interests, and abilities; emphasizing tests as teaching rather than measuring devices; avoiding lax examination conditions which encourage cheating; and employing teachers who are well adjusted emotionally.

R.V.M.

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CHECK LIST. A check list consists essentially of a set of items each of which is to be checked off, if present, in accordance with the particular purpose involved. Its major function is to focus attention on the items to be covered. Ordinarily the relative importance of the individual items is disregarded, although a weighting system may be employed. Among other uses, it may serve as a questionnaire (*q.v.*), as an instrument for recording behavior observations, and as a sort of scale, yielding a score.

For example, "Place an X before each of the following activities in which you participated during the past week:

- _____ 1. Listened to the radio.
- _____ 2. Attended a lecture.
- etc."

H.G.

CHEMISTRY, TEACHING OF. — See SCIENCE, TEACHING OF.

CHICAGO PLAN. The College of the University of Chicago differs in four important ways from the conventional liberal arts college. Its program begins two years earlier than that of other colleges, permitting students to enter after two years of high school instead of four. Its course of study consists of an integrated system of courses covering the principal fields of knowledge rather than an assortment of courses chosen by the student himself. It measures the achievements of students and determines their eligibility for the Bachelor's degree by comprehensive examinations rather than by adding up credits earned in separate courses. It expects young men and women to complete their work for the Bachelor's degree at the age of eighteen or nineteen.

The differences between The College of the University of Chicago and other colleges are not accidental, nor are they the result of a desire simply to be unique. For fifty years the University has been concerned with providing the kind of basic, general education which everyone ought to have no matter what occupation or profession he proposes to enter. In order to provide this kind of education efficiently the University separates sharply its program of liberal education from its programs of specialized or professional training. Its first president proposed in 1891 that the first two years of college should be devoted to general education, and that the completion of the work of these years should be marked by the award of a diploma. In 1931 the University was reorganized upon the recommendation of President Hutchins to provide separate administration, under The College, for the work of the freshman and sophomore years, leaving specialized and professional training to the upper divisions and professional schools of the University. In 1932 the last two years of the University High School were taken into The College, and since 1937 students who have completed two years of high-school work at Chicago or elsewhere have been admitted to The College to begin a four-year course of general education. Finally, in January of 1942, The College was empowered to award the Bachelor's degree for the completion of general education

at the end of the traditional sophomore year of college.

The core of the College curriculum consists of general courses in the natural sciences (biological and physical), the social sciences, and the humanities. Students do three years of work in each of these three fields. As they acquire information and learn to think for themselves, they are expected to develop the ability to communicate their knowledge. A three-year course in writing is, therefore, added to the general subject-matter courses. Students normally pursue these four lines of study concurrently through the first three years of their College work, taking comprehensive examinations in the natural sciences, the social sciences, the humanities, and in English at the close of each year. At the end of the student's College work he takes a one-year course in principles and methods designed to assist him to integrate the studies he has pursued. The remainder of his fourth year is open for the pursuit of special interest courses or for laying the foundation for later specialized training.

In working out the Chicago Plan of college education, the faculty has been concerned with: (1) the content of liberal education; (2) the adjustment of the subject matter of education to the previous training of the student and to his possibilities of intellectual growth; and (3) the development of the kind of person and citizen a college should aid in producing. It has been necessary again and again to ask: What should be taught? How should it be taught? And to what end?

The body of knowledge which has been accumulated in the course of Western civilization is so vast that only a small part can be included in a college curriculum. Careful selection and balancing are essential. The faculty of The College has rejected the easy solution of this problem commonly adopted by colleges—the elective system, under which students are forced to make their own selection of subjects. To present them with this difficult task is to assume that they already have the wisdom which they have come to college to acquire. The elective system is sometimes defended on the ground that it affords students a valuable freedom. But freedom to make a choice when the results of the choice are not clear is a doubtful benefit. Colleges which allow the student to choose

CHICAGO PLAN

the subjects he will study generally force him to attend class and to perform a multiplicity of routine assignments. The College of the University of Chicago reverses this procedure. It does not follow a free elective system, but it gives students considerable freedom with respect to class attendance and class work.

The Chicago faculty has worked out over a period of more than ten years a system of general courses which cut across the many special fields in the University curriculum and consist of a careful selection of fundamental materials in these fields. The course in the physical sciences, for example, includes basic instruction in physics, chemistry, mathematics, astronomy, geology, and physical geography. The general course in the biological sciences provides a knowledge of the plant and animal kingdoms; the course in the social sciences brings together the study of social problems, political science, and economics; and the course in humanities includes work in history, literature, art, music, and philosophy.

The content of liberal education has been but one of the concerns of The College. A good college course must do more than provide a survey of the present state of knowledge. The body of that knowledge is not only vast but constantly changing. It is more important that a college student should learn to understand the ways in which facts are acquired and the processes of reasoning by which they have been interpreted than that he should memorize a body of currently accepted information. All real knowledge includes a grasp of reasons. College education must, therefore, consist fundamentally of the examination of arguments and the practice of reasoning.

The general courses at Chicago emphasize the methods of acquiring knowledge of a subject. For this purpose students in the general courses meet with instructors in small discussion sections to analyze the materials given them in the lectures or presented in their reading assignments. It is assumed that students have not really understood a fact or a theory until they have examined the reasons for holding it and are able to justify accepting or rejecting it.

This kind of training should begin as soon as the student's faculties have matured suffi-

ciently to make it profitable. It should be as concentrated and efficient as possible, so as to allow students who expect to go on into medicine, law, teaching, scientific research, or other professions to begin their specialized training at a reasonable age and to make it possible for others to enter upon non-specialized work without waste of time.

The University of Chicago believes that the best time for a student to get a basic, general education is between the ages of fifteen and eighteen. Nine or ten years of sound preliminary schooling should be enough to prepare for it. Most young people are sufficiently mature at what is now conventionally the junior year of high school to profit from it. There is, indeed, a natural break at what is now for most students the middle of a high-school course, as has long been recognized in the development of junior and senior high schools.

Students who finish the work of the College are awarded the Bachelor's degree, which has traditionally marked the completion of a program of liberal education. During the last two generations, collegiate programs for the Bachelor's degree have included more and more specialized work, and with the growth of the elective system have become more and more haphazard, until the earlier significance of the degree has very generally been lost.

The requirements for the Bachelor's degree at Chicago are met by passing comprehensive examinations. When a student has completed his preparation in a subject, either by formal class instruction or by independent study, he takes an examination prepared by the Board of Examinations. The papers are read anonymously and are graded by readers other than the instructor in the course. To earn the Bachelor's degree a student who has credit for two years of high-school work (including two years of mathematics and two years of a foreign language) must pass comprehensive examinations in the natural sciences, the social sciences, the humanities, English composition, and the relationships of the subjects he has studied. Modified programs are available for students who enter with credit for more than two years of high-school work. A high-school graduate can ordinarily earn his degree in about two years. (See LIBERAL ARTS COLLEGE.) C.H.F.

CHILD ACCOUNTING. The keeping of instructional and executive records of the individual child during his school life is referred to as *child accounting*. The scope of child accounting as developed by AYRES¹ in 1915 included the recording of information concerning school census and enrollment; the enforcement of compulsory attendance; issuance of work permits; the determination of age-grade status of pupils; and the keeping of certain instructional, appraisal, and administrative records. More adequate recording of information became an important phase in the administration management of large numbers of pupils in a complex school system. Moreover, state compulsory education laws, child labor laws, and the practice of distributing state aid on the pupil basis, kept attention focused on this phase of administration.

The term was given a wider scope by MOEHLMAN² through the inclusion of such activities as the maintenance of industrial relations, placement and follow-up of pupils, and the editing of school publications.

A still broader scope of the term was later implied by HECK³ in the term *pupil personnel* which he defines as "those services whereby all children of school age are 'kept track of,' caused to attend school, and so studied that they are aided in making the maximum good use of the abilities which they have." This definition involves both a quantitative and qualitative aspect of pupil personnel work, whereas by the narrower definition of child accounting reference was made only to the quantitative aspect.

Other writers have since included various phases of guidance service in the term pupil personnel; as for example the volumes of the *Review of Educational Research*,⁴ entitled *Pupil Personnel Guidance and Counseling*, and the book by STRANG⁵ entitled *Pupil Personnel and Guidance*. Both include the recording phase or child accounting, but they go far beyond the quantitative in the determination of the kind of information to be recorded and the use to be made of the information in pupil development and adjustment.

With the increasing emphasis on pupil guidance in recent years, the term child accounting has given way to broader terms and is now little used. MOEHLMAN⁶ suggests that

the term may still be used, but should be narrowed to the original definition to include the recording of information concerning children in the schools. W.C.R.

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CHILD CARE. In a broad sense *child care* refers to the general efforts and purposes of all social agencies giving attention to child welfare in the family and community. Child care by social agencies is aimed to safeguard children and improve the influences upon them in the areas of family relationships, housing, health, recreation, child labor, dependency, physical handicaps, and social security.

The attention of child care agencies is usually directed first to family conditions affecting the child. More than half the children in our country live in families with not enough income to care properly for them. Child care agencies are concerned with, though not directly responsible for, the improvement of housing and the elimination of slums. The provision of adequate recreation and health facilities is also the concern of child welfare workers. Great progress has been made in recent years in improving the health of children, particularly of infants less than one year old. Child labor laws may be included under this head; it is essential to the proper care of children that young workers should be protected against dangerous occupations, unreasonably low wages, and excessively long hours.

Special assistance is necessary for many dependent and handicapped children. In caring for these groups, public welfare departments and private agencies now have the help of the provisions of the Federal Social Security Act. Special agencies deal with the probation and supervision of delinquent children.

CHILD-CENTERED SCHOOL

Such are some of the outstanding examples of child care usually thought of in connection with that term. There is need for more careful planning in developing such services to prevent duplication of effort, and at the same time afford to all children the medical, educational, and social services essential to safeguard the future citizens of our democracy.

The changes that have taken place in the nature of institutional provision for child care, especially for the care of neglected and dependent children, reflect the progress that has been made in our understanding of child psychology and in society's attitude toward children. As recently as the beginning of the 19th century, there were many communities that saw no need for differentiating between the care of dependent children and the care of all other wards of the state. As a result of this attitude, orphans and other dependent children were accommodated in the "poor house", along with the beggars, the blind, and insane. The segregation of dependent children and the erection of orphanages and other "homes" for children constituted, therefore, a revolutionary step in child care. In time, these large institutions were also being criticized, largely because they were so large that little attention could be given to the individual abilities and needs of children and because life in these institutions bore little resemblance to the kind of family life for which these children were supposedly being prepared when they left these institutions for adult living in the world.

The *cottage plan* represented a step in the direction of more normal provision for children. In the cottage plan type of institution, the children were housed in small cottages, often accommodating about twenty-five children, presided over by a cottage father and a cottage mother. Even the cottage plan failed to satisfy those who regarded the normal family as the ideal environment for children, for, as these critics pointed out, where was there the family that consisted of twenty-five boys all between ten and thirteen years of age? It continues to be difficult, moreover, to find a sufficient number of cottage fathers and mothers who have the personal qualities and professional abilities needed for their responsibilities and who are willing to serve for the relatively small remuneration usually paid for this type of work.

Two other types of adjustment have therefore become increasingly popular. Where the child's family can continue to function if its financial burdens are eased, some form of subsidy may be granted, either in the form of a widow's pension or as a direct subsidy from the community, or a charitable agency. Where the child's family is not available or is not the appropriate environment for the child, he may be boarded with a "foster" family and thus live in a family environment that resembles that of more fortunate children.

Today, provision for child care takes many forms. There are special institutions of the orphanage type, cottage plan institutions, foster homes, and subsidies to the child's family. The type of provision that is made for an individual child depends on the facilities that are available in the community and on the special needs of the child. (See **DEPENDENT CHILDREN.**)

M.E.F.

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CHILD-CENTERED SCHOOL. The expression *child-centered school* was popularized by Harold Rugg and Ann Shumaker in their book by that title which presents an appraisal of the new education. The book is a "Critique of Progressive Education in the United States" and the story of the early progressive schools.

The child-centered school typifies the reaction against mass education, formal discipline, "subject-storage curricula," and the lock-step of the traditional school. The child-centered school stresses freedom vs. control, child initiative vs. teacher domination, activity and experiences vs. passive listening and the formal recitation, child interest vs. routine and restraint, creative self-expression vs. imitative reproduction and repetitive drill, personal and social adjustment vs. regimentation, child growth vs. subject mastery.

Some "progressive" schools and "progressive" parents tend to go to such absurd extremes in their reactions as to discredit the whole progressive education movement. As a

result, the child-centered school often connotes license vs. freedom, superficiality vs. power, caprice vs. plan, disrespect for authority vs. ability to use the best experience of the race and guidance by elders. In its better sense, it stands for emphasis on child study, child development, child guidance, and adjustment of the child to his natural and social environment. (See **ACTIVITY PROGRAM**; **PROGRESSIVE EDUCATION**.) J.J.L.

Reference.

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CHILD GUIDANCE CLINICS. Child Guidance Clinics (also known as Child Guidance Centers, Institutes for Child Guidance, and Bureaus of Child Guidance) are agencies concerned primarily with effecting the adjustment of children who are handicapped by emotional difficulties, present in either the parent or child, by inequalities between their capacities and the social and educational demands, and by other traumatic environmental situations. The clinic in carrying out its function of improving the adjustment of children does so through (1) the study and treatment of individual children, (2) the co-operative study of cases with social agencies, juvenile courts, etc., and (3) an educational program designed to disseminate mental hygiene concepts in schools, and other child-centered agencies.

Children are referred to the clinic for such disturbing behavior as disobedience, rebelliousness, marked aggression, stealing, truancy; for such personality difficulties as withdrawal from social contacts, inability to get along with other children, shyness, nervousness, and fears; and for such school difficulties as inattention, indifference, repeated failure, etc. Clinics also assist other agencies in working out placement and adoption plans. The age range is from infancy to late adolescence. Child guidance clinics are primarily community clinics, i.e., financed by Community Chest Funds, or private endowments. However, some clinics are connected with general hospitals, while others, in the larger educational systems, help integrate all child guidance services in the schools.

The average staff of these clinics consists of a psychiatrist, who is usually the executive head, a psychologist, a part-time pediatrician, one or more psychiatric social workers,

and a clerk. The cooperation of these various professions in understanding and treating children's problems assures a broader service than could be rendered individually.

The psychiatrist assumes the principal responsibility for diagnosis and treatment. In clinics where the services of a pediatrician are not available, he also conducts the physical examination of the child and makes recommendations for physical care. He works primarily with the child, determining the emotional attitudes and reactions. When psychiatric treatment is indicated, he sees the child at regular specified intervals for that purpose. He also deals with adult problems when they are closely related to the difficulties of the child being studied, and may even focus his treatment on the parent, rather than the child. The psychologist tests the child's capacities and achievements, may be responsible for a remedial teaching or tutoring program, makes school contacts when the significant disability is academic in nature, and in a limited number of clinics has the responsibility for treatment of behavior problems. The psychiatric social worker studies (through home, school, and office interviews) the underlying social and emotional factors in the home, school, and community. The material derived from the combined studies is discussed at a staff conference which usually includes the school principal, teacher, and any pertinent social agency worker. In the conference, treatment plans are evolved. These may consist of psychotherapy for the child given by the psychiatrist, treatment of the parent by the social worker to effect changes in attitude and handling of the child, adjustment of the school program, and interpretation of clinic findings to the school.

Studies of juvenile delinquency have repeatedly revealed the fact that children brought into court have, as a rule, been known as behavior problems by schools and other community agencies for some time previous to their arraignment in court. It seems reasonable to suppose that any program of prevention begun early enough will save not only the usefulness of the individual to society, but also the more extensive outlay of public money for mental hospitals and prisons. Public-spirited citizens are beginning to use their influence to increase the number of Child Guidance Clinics which at

present are far too few to serve even those already applying for help, while they must ignore the larger number of children who need help but who have not been referred to the clinics. (See MENTAL HYGIENE.) M.S.Q.

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CHILD LABOR. Child labor is essentially a denial of child education, and is the counterpart of compulsory education. The employment of children is regulated directly by child-labor laws and indirectly by compulsory school attendance laws.

State Legislation. By and large, apart from Federal legislation, the regulation of child labor is a problem of establishing by state legislation standards of age, education, physical condition, maximum hours, and hazardousness of specified occupations. While there is no uniformity among the states on these matters, at present thirteen states (including 41% of our population) approximate a 16-year minimum standard for all employment during school hours. Except for industrialized agriculture, a 14 to 16-year minimum for employment during school hours prevails generally throughout the United States; but more than 60% of the child workers are employed in agriculture.

Federal Legislation—Early History. As early as 1884, organized labor made a plea for an amendment to the Federal Constitution empowering Congress to regulate child labor and the first proposal was introduced into Congress in 1906. As finally adopted in 1916, the first Federal Child Labor Law (39 Stat. 675) prohibited the shipment in interstate commerce of goods produced in mines or quarries employing children under 16; or in mills, factories, etc., employing children under 14, or in industries in which children between 14 and 16 worked more than 8 hours daily or more than 6 days weekly. Over the brilliant dissent of Justice Holmes, and by a 5—4 vote, the Supreme Court held this Act unconstitutional, it being

beyond the federal authority to control interstate commerce. *Hammer v. Dagenhart*, 247 U. S. 251 (1918). A second Act in 1919 (40 Stat. 1138), placing a 10% tax on profits of mines employing children in violation of the standards of the 1916 Act was likewise declared to be an unconstitutional exercise of taxing powers. *Bailey v. Drexel Furniture Co.*, 259 U. S. 20 (1922).

To legalize such statutes, Congress in 1924 adopted a proposed child-labor amendment empowering Congress "to limit, regulate and prohibit the labor of persons under 18 years of age." The proposed constitutional amendment requires the ratification of three-fourths of the states; to date, and despite the tremendous pressures brought to bear by religious, economic, and political groups, 28 states have ratified the proposed amendment. In 1939 the Supreme Court ruled that the constitutional amendment was still alive for ratification and that the mere passage of time was not fatal to its ultimate approval by the requisite number of states.

Federal Legislation—Present Status. Congressional action, however, has not awaited final approval of this amendment. The Walsh-Healy Act of 1936, 49 Stat. 2036, 41 U. S. C. 35, bars employment on government contracts exceeding \$10,000 of boys under 16 and girls under 18. The Jones Sugar Act of 1937, 50 Stat. 903, 54 Stat. 571, 7 U. S. C. 1131a, conditions payment of federal benefits to farmers on the prohibition of child labor under 14, except for members of the immediate family; and on the prohibition of child labor between 14 and 16 for more than 8 hours daily. Violations are punished by deductions from benefits of \$10 per child per day.

The greatest advance came with the Fair-Labor Standards (Wages and Hours) Act of 1938, 52 Stat. 1067, 29 U. S. C. 212, which accomplishes what the first two federal child labor acts failed to do. It forbids the shipment in interstate commerce of goods produced by child labor under 16 in covered employments, or under 18 in occupations declared by the Children's Bureau to be hazardous. The Act does not apply to agriculture, intrastate commerce, street trades, or to children between 16 and 18, thereby leaving untouched the greater portion of child labor.

The Supreme Court upheld the constitutionality of this Act in 1941, *U. S. v. Darby*, 312 U. S. 100, 61 S. Ct. 451, specifically overruling the first child labor case and opening the field for control of child labor on the federal level.

While the recent decisions of the Supreme Court of the United States restore to the Federal government power to deal with child labor, such authority so far is limited to the scope of otherwise permissible federal activity (interstate commerce, agricultural benefits, and government contracts). The necessity for the thorough-going powers which would be given Congress by the constitutional amendment still prevails. H.N.R.

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CHILD PSYCHOLOGY. Child psychology is not a different psychology from that of other age levels; it is the psychology of a developing personality from its earliest stages through the beginning stages of adolescence (*q.v.*) or to that age when the attainment of maturity becomes the focus of investigation. The scope of child psychology today includes every aspect of child growth and behavior, e.g., the establishment of habits of eating, sleeping, and elimination, growth in size and in motor and manual coordination, the acquiring of speech, the development of the emotions, the learning of patterns of social behavior, as well as the growth of intelligence and interests and the learning of informations and skills.

Theories of child psychology always have been closely related to theories of original nature and of learning. When these began to be checked by observation and experimentation the child study movement developed.

Since every phase of child life is included in child psychology, children are studied at

home, at school, at play, with adults, with other children of the same age, and with children of different ages. The content of child psychology now includes a vast amount of factual data together with various hypotheses, of which some have gained a high degree of consensus among psychologists, while others still form the subject of heated controversy. Facts have been gathered by and for those interested in child training, those interested in the personality adjustment of children, and those interested in formulating the principles of child growth.

Much of the work in child psychology has been concerned with the establishment of norms of size and of behavior for different age levels. Ideally, development should be studied longitudinally if one is to determine whether the curve of growth is uniform for different children and whether there is an orderly progress through definite stages. Studies which are continued over a period of years are, however, difficult to undertake for a large sample. The norms of performance at various age levels usually are obtained from a group of children of mixed chronological ages who can be divided up into subgroups representing each age being studied. One of the most elaborate scales of early development is Gesell's series of standardized norms for infants from one to thirty months of age. These norms cover the fields of motor, language, adaptive, and personal-social behavior. Norms from other studies, however, vary considerably. The norm variations are due partly to the fact that the number of children studied by a single investigation at any one age level are often exceedingly small, being fewer than ten in many cases. These investigations are nevertheless important in that they point to the existence of very wide individual differences among children in the rate of their development.

Much less difference has been found in the order of development, particularly in the order of motor development. It is agreed that the vast majority of children can walk upstairs alternating the forward foot long before they can walk downstairs in such manner, this latter accomplishment being reached, on the average, between the fourth and fifth year. Most children can jump off the floor with both feet before they can hop on one foot. They can make distance jumps and jump from heights, and can acquire consid-

erable skill in climbing, before they can skip. About half of kindergarten children have been found to be able to skip in rhythmic fashion with alternating feet. Block-building has been observed to progress from crude, unsteady structures not meant to be representative of any object, through only slightly recognizable structures which were definitely planned by the child to represent real objects, to careful symmetrical construction which show an advance in imagination as well as in manual skill. The degree of imagination displayed in such activities reveals especially wide individual differences.

The fact that there is a fairly orderly progression of motor development has led to the construction of scales of development which have been used as measures of intelligence in the early years of childhood. The unevenness of developmental curves, however, keeps such measures from being accurate. There are a number of mental tests used for preschool age children, such as the Kuhlmann Tests of Mental Development, the Merrill-Palmer Scale, the Minnesota Pre-School Scale, and the Pintner-Patterson Performance Tests. (See INTELLIGENCE.) Only a minority of psychologists grant high validity to the mental age assigned to a child who is tested before the age of five.

With the establishment of nursery schools (*q.v.*) and nursery clinics in connection with colleges and other institutions, the amount of trained observation of children has increased greatly. It has become possible also to set up experimental situations in which children are exposed to selected stimuli. Observation in free situations is often controlled by the time-sampling technique where each child is observed for the presence or absence of certain selected behaviors during short periods of time (often not more than five minutes) distributed over a succession of a considerable number of days or weeks. The observers usually are trained and tested for the reliability of the data they record.

Besides these controlled observations, verbatim records and full descriptions of what children say and do both in free and in experimental situations have proved exceedingly helpful in the study of children. Such records are full enough so that they can be arranged in different ways for later analysis and interpretation without too much distortion resulting from their being lifted out of

context. Those investigators who are particularly interested in the social development of children find this method most useful. It gives them an opportunity to plot the relationships among the same group of children in different situations and with different adults present. The growth of certain traits in any one child can be studied qualitatively as well as quantitatively. It becomes easier to locate the factors which are influencing the behavior of each child.

Some conclusions borne out by all such group behavior records are that patterns of behavior differ from child to child even in preschool years, and that though these individual patterns change as the child grows, it is the pattern that changes rather than a single trait. The child's awareness of other people increases as age increases. The child develops from an egocentric to a sociocentric being. This does not mean that he changes from a selfish to an unselfish creature. It merely means that he learns to take the other fellow's behavior and point-of-view into account in making his own plans. Obviously, sociocentric thinking must be present before sympathetic and unselfish behavior can be displayed, but a person who understands another person's point-of-view may use that understanding to further his own ends at the expense of that other person.

Records of children's early behavior in group play almost entirely free from adult interference definitely have disproved Rousseau's theory that children are born good and that it is society which makes them bad. It is evident that society does "make" their social traits but it can make them good or bad. Different teachers (representatives of society) are found to have quite different effects on the social behavior of children, for example on the amount of aggression and sympathy they develop.

Direct questioning of children offers another method of obtaining data. The younger children are necessarily tested orally and individually, and many psychologists prefer the individual oral method even with older children who can read and write. This preference is due to the difficulty that children often have in interpreting the question asked them in the way that the examiner meant it to be understood. Oral questioning can make certain that the child does get the desired meaning. Piaget (*q.v.*) used the method of

individual questioning even with children of twelve to fourteen years of age, when he made his extensive investigations of children's language development, their reasoning, their conception of the world, and their moral judgment.

These investigations of Piaget resulted in a heated controversy as to whether children and adults think in radically different ways or in essentially the same manner. It was Piaget who proposed the term "egocentric" as descriptive of children's thinking and "sociocentric" as descriptive of adult thinking, which he believed was reached by most children about the age of thirteen or fourteen. Investigations which followed those of Piaget have, on the whole, disproved both his age norms and his clear dichotomy between the thinking of children and of adults. Egocentric and sociocentric thinking both have been found to be present at all age levels. The degree of egocentricity depends largely upon the newness and difficulty of the relationships which are being reasoned about. Naturally, the same problems set before both young and old will result in a much greater degree of egocentric thinking on the part of the young. Illogical thinking also is prevalent with both young and old whenever thinking from a point of view other than one's own means accepting a condition (even hypothetically) that is emotionally distasteful.

Whether children learn differently from adults also has been a lively topic of controversy among those who do not accept a single-principle theory of learning. Some psychologists believe that the conditioned-response description of learning fits children better than does any other description. In so far as childhood is a time when many fears and likes and dislikes of specific things are being established—and the theory of conditioning seems to be at its best in describing such learnings—this theory of conditioning will describe adequately how children acquire behaviors in this area.

That children learn mostly by imitation and drill has been assumed by adults who have given children tasks to perform which were so far beyond their level that the children could not solve them. On the other hand the drill tasks set them (usually verbal drill) were within their power of memorizing, if not understanding, and the method of testing their learning measured only their

ability to recall. Other investigators claimed that when children did solve problems, they solved them by random trial and error, not by reasoning. However, there are sufficient investigations today to show that at a very early age children learn by reasoning if the problem before them is one not too difficult for their mental-age level. The most accepted conclusion is that children and adults learn by essentially the same process under psychologically equal conditions.

The investigation of children's interests, their likes and dislikes, has been another fertile area of investigation. This has been done predominantly by the questionnaire (*q.v.*) technique, both oral and written. It has been found that interests change with both age and environment (physical and social) and that sex differences in interests arise at an early age. These sex differences are themselves different in different environments and different eras, thus showing the influence of the culture upon them.

Recently, one of the problems receiving a good deal of experimental investigation has been the relationship between maturation and learning. McGraw's experiments with twins during their first few years of life are well-known. One of these boys was trained in various activities as early as possible by being provided with equipment and stimulation, while the other was left alone as much as was considered advisable, and did not begin his training in some of the activities until a year or more after his brother. The advantages of the earlier training proved negligible in somatic skills common to all mankind, such as walking, and in activities, such as tricycling, which were found very difficult by the twin who started his training early. For some years after the experiment was over, the earlier-trained twin did maintain superiority over his brother in certain performances where the growth of the body did not necessitate a readjustment in technique. Differences in the attitude of daring and in grace of movement were also found to favor the earlier-trained brother. Other similar studies have also pointed to the conclusion that for some activities it is well to wait for a certain degree of maturation before subjecting a child to specific training. Attention is now being centered on means of determining when a child is ready to receive training in this or that area. Combinations

of physical and mental tests plus specially developed readiness tests are already being used as the criteria for determining when formal reading and arithmetic instruction should begin. (See **READING READINESS**.)

Projective techniques (*q.v.*) are being used both for the study and for the release of children's emotions. Toys which are representative of both objects and people and which the child can use to represent specific persons in his environment are given to him to play with as he wishes, though he is carefully and often unobtrusively observed. At other times the experimenter may enter the play and guide it into certain channels, noting the child's reactions to the play situation thus set up. Observations have been made as to how children handle their frustrations and their aggressions and how they work out social situations with dolls, toy houses, toy automobiles, etc. The degree of emotional repression already present in these nursery school years is thus estimated. If the inhibition is judged to be excessive, it is hoped that the play material will in time bring some release on a symbolic level. At the same time parents and teachers are given interpretations of this play behavior so that they can guide better their own relations with the children.

The acquirement of adult taboos and adult prejudices has also been studied more directly. Race prejudice has been found to be nonexistent in the earliest years and its later development is fostered both by the general mores of the child's social group and by direct teaching and punishment for transgression of the parent's wishes. Even in southern United States, the general mores are not strong enough to develop a high degree of race prejudice among young children, and even in children of elementary school age, until these prejudices are reinforced by the direct teaching of adults. Other attitudes are similarly acquired both from the mores and from the particular adults who are in authority over the child.

A very large part of child psychology concerns itself with the mental hygiene of childhood, with children's need for love and security and status. Child guidance is interpreted as meaning guidance of the whole child in all phases of his development. His emotional adjustment to a world that will bring him many frustrations is regarded as

only one side of the guidance procedure. The converse side requires that parents, teachers, and other adults adjust their demands upon the child and their relationships to him in such a way that he will not have more frustrations than he can handle.

The extent to which modern educational thinking stresses the importance of relating educational practices to the child's needs, interests, and abilities has made the study of child psychology an increasingly important part of preservice teacher education. The emphasis in educational psychology traditionally has been placed on the child as a learner, with the attendant stress on such topics as transfer of training, curves of learning, growth of intelligence, etc. Recent textbooks in educational psychology reflect the change in educational thinking by paying considerable attention to such topics as children's interest, personal and social adjustment, and growth. The need for understanding the psychology of the child as a person rather than only as a student has been more apparent in the education of the elementary school teacher than in that of the secondary school teacher. There is as yet little evidence that a corresponding degree of interest in the personal adjustments of the college student is a recognized part of the preparation of college teachers. (See **MENTAL HYGIENE**.) B.B.F.

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CHILD STUDY MOVEMENT — See **CHILD PSYCHOLOGY**.

CHILDREN'S BUREAU OF THE UNITED STATES DEPARTMENT OF LABOR. The Children's Bureau was established in 1912, and carries on a comprehensive program of child welfare by conducting research, providing consultation service, and

publishing popular and technical bulletins on problems relating to children in industry, child development, treatment of delinquents, and the care of dependent, neglected, and handicapped children. Under the provisions of the Social Security Act of 1935 the Children's Bureau cooperates with state public welfare agencies in establishing, extending, and strengthening, especially in predominantly rural areas, child welfare services for the protection of homeless, dependent, and neglected children and those in danger of becoming delinquent. The Chief of the Children's Bureau must approve plans for maternal and child care submitted by states before allotments of federal funds may be made. Three divisions within the Bureau administer the maternal and child welfare provisions of the Social Security Act: (1) The Maternal and Child Health Division, including a public health nursing service, (2) The Crippled Children's Division and (3) Child Welfare Division.

M.S.Q.

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CHILDREN'S CHARTER. The White House Conference on Child Health and Protection (*q.v.*) in 1930 drew up a statement of its fundamental principles in the form of a Magna Charta or Bill of Rights for childhood. This Children's Charter, as it was called, consisted of a beautifully formulated presentation of nineteen requirements which the conference considered a minimum for a healthy and happy childhood:

Point I claims the right of every child to spiritual and moral training with the aim of building strong character.

Point II claims the right of every child of understanding and the protection of that personality which makes him different from all other individuals in the whole fabric of society.

Point III claims the right of every child to love and the security of paternal care, or its nearest possible substitute.

Point IV claims the right of every child to preparation for life and protection at birth; and for every mother: preparation for the giving of life and protection against unnecessary hazards in child-bearing.

Point V claims the right of every child to

health protection in his home, in the school he attends, and in the community in which he lives.

Point VI claims the right of every child to health instruction and wholesome recreation.

Point VII claims the right of every child to home environment which provides for the child's needs: for his safety, for privacy, space, and place to play.

Point VIII claims the right of every child to a school environment equipped for sanitation, safety, and comfort.

Point IX claims the right of every child to a community which provides for his needs.

Point X claims the right of every child to an education which incorporates preparation for the obligations and responsibilities of parenthood, citizenship; and for parents: dissemination of the accruing knowledge to prepare them for parental responsibility.

Point XI claims the right of every child to an education which considers him as an individual and prepares him both for living and for earning.

Point XII claims the right of every child to safety from accidents to himself and to his parents.

Point XIII claims the right of every handicapped child to his rightful education, development, and protection.

Point XIV claims the right of the child hitherto known as delinquent to intelligent and humane treatment.

Point XV claims the right of every child to that security and protection against dependency which can come only with a decent family income.

Point XVI claims the right of every child to protection from labor before the full span of childhood is reached.

Point XVII claims the right of the rural child to health protection and cultural and social advantages.

Point XVIII urges the stimulation of those organizations and groups which have sprung up to supplement home and school in the molding of youth and in providing for youth's interests.

Point XIX urges the need of machinery in districts, counties, and communities to carry out these health and welfare rights outlined in the Charter.

M.E.F.

CHILDREN'S COURT — See JUVENILE AND DOMESTIC RELATIONS COURT.

CHILDREN'S DISEASES — See COMMUNICABLE DISEASES OF CHILDHOOD.

CHILDREN'S LITERATURE. Literature for children is not limited to those books written and designed expressly for children but includes all prose and verse that appeal to the young. Indeed, very little of the vast store of folk and fairy tale, of legend and of nursery rhyme, was created for the young. Until recently this traditional lore plus selections from adult literature plus dull tales specially written to embody some moral, formed almost the entire content of approved books for children. Outside of folklore there was little that could be called literature and that at the same time was suited to the child's reading ability, to his level of understanding, and to his interests. About the middle of the 18th century, John Newberry published what was probably the first English book written for the amusement of children and which took account of printing and illustration in terms of the young reader.

The increasing number of children's books printed in the next century, however, concerned themselves not with children's amusement but with their instruction, both factual and moral. The narrative part of the child's story book merely held the information together or formed the context in which the moral lesson could be conveyed. Though Grimm's Folk Tales had appeared in English before that time, it was not until the publication of Hans Christian Andersen's stories toward the middle of the 19th century that fairy tales assumed a predominant place in children's books. Neither Grimm nor Hans Andersen had written for an audience of children, and many of their tales are unsuitable for the young reader, either because of content or complexity.

There has been a controversy, recurring at intervals, as to whether children should be given much fanciful literature. Today the multitude of books written for children, and published in a format and with illustrations designed especially for them, includes a great variety of content both realistic and fanciful. Among books which have received the Newberry medal, awarded since 1922 for the most distinguished children's book of the year, are

stories both fanciful and realistic. Outstanding among modern books are picture books for children who cannot read as well as for those who can. There is now a special award (Randolph Caldecott Medal) for the most distinguished American picture book of the year. Much of the new juvenile literature is newly written by authors and poets who are beginning to be known as children's writers, though a number of them have reputations in the adult field as well as. However, a considerable number of the new books are old tales rewritten for modern boys and girls, and printed and illustrated in keeping with the rapid progress that has been made in the graphic arts. A children's room or section in the public library with a children's librarian in charge; Children's Book Week celebrated in November; the Junior Literary Guild; a Book Buying Club for boys and girls; a page or more of reviews of children's books appearing regularly in the book review section of the Sunday newspapers—all serve to bring before the young and their parents the good children's books now coming regularly off the American press. There is also a slow but increasing tendency to establish libraries in elementary schools, which to date have suffered from a dearth of reading material.

B.B.F.

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E. S. SMITH, *The History of Children's Literature* (American Library Association, Chicago, 1937).

CHILE, EDUCATION IN. A high degree of centralization is the characteristic feature of the Chilean educational system, as it is that of the Chilean State. According to the ideas of don Andrés Bello that education should radiate from the upper to the lower classes of society, all branches of education were organized in 1842 under the direct authority of the University of Chile. In 1860, primary education, and in 1879 secondary and higher education, though keeping some of their former links with the University, were reorganized as separate entities more directly controlled by the Ministry of Educa-

tion. The reforms from 1927 to 1931 greatly contributed to articulate the different branches of education into a better integrated system.

At present, all primary, secondary and special schools are under the supervision of the Ministry of Education, which supports and operates all public schools, and controls and partially subsidizes private ones. The University of Chile has enjoyed relative autonomy since 1929, and retains control over the examinations given by the professional schools of private universities for diplomas recognized by the State. The Ministries of Defense, Agriculture, Land and Colonization, and Justice operate a few educational institutions—Military and Naval schools, elementary courses for recruits or prisoners, institutes of rural education and demonstration, reformatories for delinquent minors.

The Minister of Education drafts the bills for educational laws and prepares budgets to be presented to the Parliament; through decrees, regulations and directions, he determines and applies the Government educational policy and is responsible for the operation of the whole system. The Minister is assisted by the Under-Secretary, the administrative head of the Ministry, and by the Directors-General of Primary, Secondary, Industrial and Commercial Education, and of Libraries and Museums, all responsible to him and to the President.

The Directors-General, assisted by a staff of inspectors, visitors and other experts, supervise the institutions under their charge and submit to the Minister's decision the major technical and administrative matters—curricula, courses of study, methods of instruction, special regulations, examination system, etc.—and all the appointments and promotions.

Various laws, especially that of August 26, 1920 on compulsory attendance, impose on local authorities and, under certain conditions, on landowners and large industrial and mining enterprises, some responsibility in the support of elementary education. Although the Constitution of 1925 also provides for a certain degree of administrative decentralization, nevertheless, very little has yet been achieved in order to share the burden upon the State of the complete financial support of education, and the exclusive control of education by central authorities.

Public education is practically free. In

secondary schools and in the University extremely low fees are charged, and a great number of scholarships are granted to needy students at both levels. Elementary school children receive free school materials, and, in many of the poorest areas, breakfast, lunch and clothes.

Private institutions, except the Universidad de Concepción, the Universidad Técnica Federico Santa María (Valparaíso), a few secondary schools maintained by foreign groups and the elementary schools of the Sociedad de Instrucción Primaria, are Roman Catholic. Practically all of them charge registration fees, and receive some public financial support.

The school system consists of:

Primary level. 1. A few infant and kindergarten courses, mostly private.

2. About 4,000 primary schools, divided into three classes: (a) six-year schools, to which a vocational grade or a shop school is usually added (12 per cent of the total number); (b) four-year schools (16 per cent); (c) two- or three-year schools—usually rural, one-teacher schools (72 per cent). Specifically rural schools are beginning to develop, as well as adult education.

3. Primary preparatory schools, attached to the Liceos, which are actually selective on a social class basis.

4. Schools for physically handicapped.

Secondary level. 5. Six-year *Liceos*, in which almost exclusively academic education is given, and the completion of which is prerequisite for entrance to university schools. A few *Liceos técnicos* have been created recently, in which vocational and academic education are combined.

6. Commercial, agricultural, industrial, mining, vocational feminine three- or six-year schools, in which, besides specific courses, some general education is given. Students who complete the courses in these schools may pursue more advanced work in other institutions.

7. Normal schools for elementary teachers.

8. Schools for artistic education.

University level. 9. Professional schools of the faculties of Law and Social Science, Biology and Medical Science, Mathematics and Physical Science, Philosophy and Education, Fine Arts, Economy and Business, Veterinary, and Agriculture. Professional diplo-

CHILE, EDUCATION IN

mas granted by the University of Concepción and the Catholic University are controlled by the University of Chile. University extension, summer and winter courses have been offered regularly since 1936.

The following figures (for 1939, when the population of Chile was 5 million) and the comments give an idea of the relative importance of these different types of schools and of the distribution of educational opportunities:

Type of school	Total average attendance	Per cent of attendance in private schools
Infant and Kindergarten courses	3,000*	60 per cent*
Elementary schools ..	445,125	17
Vocational grades and shops	12,858	9
Preparatory schools (attached to Liceos)	33,327	63
Liceos	39,575	37
Agriculture, mining, industrial schools ...	5,092	35
Commercial schools ..	5,662	25
Vocational feminine schools	3,801	6
Normal schools	1,672	11
Artistic education schools	1,412	20
University schools ...	6,595	30

*Estimated.

Illiteracy among those over seven years of age has been reduced from 80 per cent in 1850, 60 per cent in 1900, to 20 per cent in 1940. However, only 7 per cent of the pupils who enter elementary school complete the six-year course. About 70 per cent of the population of elementary school age and about 12 per cent of the population of secondary school age have some educational opportunity.

Mainly because of the traditional prejudice against manual work, which still subsists in the upper strata of society, only 20 per cent of the secondary level population is engaged in vocational studies. About 80 per cent of the pupils who enter the Liceo come from the preparatory elementary schools. Private schools at all levels select their pupils on an economic and social class basis.

In spite of the great progress of social, economic and political democracy during the last two decades, these figures and remarks support the statement that Chilean education still reflects the sharp class division typical of Chilean society. In fact, although not legally, three systems may be distinguished,

with growing relationships between them, especially between the first two: public elementary schools and vocational courses—for the masses; public preparatory schools, liceos and higher education—for the middle classes; private preparatory schools, liceos and higher education—for the upper classes.

Elementary school teachers are prepared in six-year boarding normal schools. Courses for teachers in service, school principals, supervisors and visitors are regularly held at the Superior Normal School, Santiago.

Secondary teachers are prepared in five-year courses at the Instituto Superior de Humanidades, Instituto de Educación Física y Técnica and Instituto Pedagógico, of the Faculty of Philosophy and Education. Summer and winter university courses provide opportunity for post-graduate students. Demonstration schools are connected with the institutions for teacher education.

Because of their different educational qualifications and of prevalent ideas about the matter, elementary and secondary teachers have different salary scales. Both are entitled to quinquennial increases of 20 per cent, so that initial salaries are doubled in 25 years. They can retire on full salary after 30 and 35 years, respectively. They also enjoy the manifold benefits of the Security Fund for Public Employees, and a degree of professional and economic security which can hardly be found in other countries.

Secondary schools and universities attract an important number of students from other Latin American countries. Chilean educators have contributed to the reorganization of educational systems in Bolivia, Venezuela, Santo Domingo, and Costa Rica.

From the point of view of educational theory and practice, Chilean education is undergoing a slow, but profound, process of transformation. The tendency to abandon the old traditional and authoritarian pattern and its rigid uniformity, in order to secure a better adaptation to individual differences and to the social and economic needs of national life, is particularly noticeable in elementary education. Experimental elementary schools, and the Liceo Experimental Manuel de Salas have been organized in order to try new educational theories. A commission has recently been appointed to make a survey of Chilean education. Its reports should furnish a sound

basis for future reforms of the whole system.

O.V.

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CHINA, EDUCATION IN. Education in China is as old as Chinese civilization, but the introduction of modern schools is a comparatively recent development. The first system of modern schools was set up in 1902. In 1912, with the establishment of the Republic, there was introduced a new system which bore some resemblance to the American system. A revision in 1922 provided for two levels of secondary education similar to the junior and senior high schools of the United States. While important changes have been made since then, the system today still follows the main outline adopted in 1922.

The School System. The six-year elementary school is divided into a four-year lower primary school and a two-year higher primary. After the elementary school, one may enter the three-year junior middle school or the junior vocational school, which usually provides for a three-year course. Upon graduation from the junior middle school, one may enter the senior middle school, the normal school, or the senior vocational school. The senior middle school, offering a three-year course, leads to the four-year college or university or to technical or professional schools.

Aims of Education. The program of education is planned in harmony with the spirit and purposes of *San Min Chu I*, the guiding principles of new China since the inauguration of the present government in 1928. The aims of education, as officially stated, are "to enrich the life of the people, to maintain and develop social life, to promote the livelihood of the citizens, and to continue and foster national life, in accordance with the spirit of *San Min Chu I*, ultimately aspiring to the independence of the nation, the assertion of people's rights, the development of people's livelihood, and the realization of universal peace and brotherhood."

Educational Administration. Prior to the establishment of the present regime, the government followed a laissez-faire policy in education. There was no co-ordination of educational effort, no supervision over any private schools. Schools and colleges grew without reference to the considered needs of the locality; standards were varied and often very low. Since 1928, the central government has adopted a more positive policy with the purpose of building up a national system of schools closely articulated to the needs of the nation. To achieve this end, a centralized system of educational administration was inaugurated. At the head of the national system stands the Ministry of Education, whose chief authority is the Minister of Education, appointed by the National Government at the recommendation of the President of the Executive Yuan, of which the Ministry is a branch. The Minister of Education exercises control and supervision over all branches and levels of education in the nation; he is assisted by vice ministers, secretaries, inspectors, and clerks. Besides recommending to the National Government educational laws which determine major policies, he issues ministerial orders and regulations which must be obeyed throughout the nation. The Ministry is divided into five departments: higher education, general education (elementary and secondary), social education, Mongolian and Tibetan education, and general affairs. There is a Bureau of Compilation and Translation in charge of the examination, translation, and publication of school books, and a number of committees such as the Committee on Medical Education, the National Committee on Compulsory Education, the Committee on Cinema and Radio, the Committee on Moral Training of Youth, the Committee on Physical Training, etc.

The highest educational office within the province is the Department of Education. The Commissioner, who is a member of the Provincial Government, is appointed by the National Government and is responsible to the Minister of Education. Although he is charged with the execution of national laws and ministerial orders, he has a good deal of authority and has occasion to exercise much initiative within the province. Provinces are divided into *hsien* and municipalities; in each there is a Bureau of Education, with a Direc-

tor, assisted by a small staff, and responsible to the Commissioner of Education of the province.

Elementary Education. The elementary school admits pupils at the age of six. Its curriculum consists of civics, hygiene, physical education, Chinese language, social studies, nature studies, arithmetic, manual work, art, and music. Elementary education is free. The law recognizes 6-12 as school age and four years of primary education as the minimum of compulsory education. While the principle of universal compulsory education has been accepted for many years, the realization of the ideal has been frustrated by practical difficulties, chief of which is the financial cost of providing facilities for schooling. Several plans previously adopted proved to be merely paper plans. In 1932, the Ministry of Education took steps to initiate a more workable plan with a definite program of financial subsidies from the national government to the different provinces. The latest plan, adopted in 1935, provided for three stages for the achievement of universal compulsory education. The first stage, 1935-40, called for the establishment of enough schools and classes to give one year of primary education to 40 per cent of the nation's children of school age; the second stage, 1940-45, was to bring two years of primary education to 80 per cent of children of school age; and finally the third stage, 1945-50, was to extend universal education to four years for all children of school age. That the plan was really workable in the light of actual conditions was proved by the notable progress made in the first two years of the plan. The year 1935-36 saw the establishment of 35,175 primary schools and 25,901 part-time schools which provided instruction for 3,841,930 pupils hitherto neglected. The next year, 1936-37, witnessed the increase of 13,267 primary schools and 38,117 part-time schools and brought primary education within the reach of 4,405,291 additional pupils. These increases raised the total enrollment to 21,435,353, which constituted approximately 43 per cent of the total population of school age. If it had not been for the outbreak of the war, the plan would most probably have proceeded in accordance with the original schedule.

Secondary Education. There are three types of secondary schools: the middle school,

the normal school, and the vocational school. The junior middle school and the senior middle school may be established separately or combined into one institution. The curriculum of the junior middle school consists of civics, Chinese, English, history, geography, mathematics, physics, chemistry, zoology, botany, hygiene, drawing, music, manual work, physical education, and scout work. These studies are continued in the senior high school, with the addition of logic, with the differentiation of Chinese and foreign history and of Chinese and foreign geography, and with military training (for boys) or first-aid (for girls) taking the place of scout work. All subjects must conform to the standards promulgated by the Ministry of Education; there are no electives in the middle school curriculum. Physical education is given much emphasis; the regulations stipulate that no classes should be scheduled after 3:00 p.m. so that students may spend two hours every afternoon in physical activities. Science is particularly stressed. In response to the needs of the nation, and also to offset the traditional neglect of science studies, great effort is being made to promote the study and teaching of science in middle schools and colleges. It was found that science teaching in the middle school was handicapped by the lack of competent teachers, of adequate textbooks, and of laboratory equipment. To overcome these difficulties, summer institutes for teachers have been inaugurated; colleges and universities are charged with the urgent task of producing more science teachers; textbooks are being prepared by the Bureau of Compilation and Translation and by scholars under the encouragement of the Ministry of Education; universities and research institutes have been asked to construct laboratory apparatus with homemade materials to make them available at low cost; and joint laboratories have been established to enable adjacent schools to make common use of the facilities at different hours.

The normal school admits graduates of the junior middle school (or students of equivalent standing) for a three-year course which qualifies for elementary school teaching. Its curriculum is standardized by the Ministry of Education. The principle is maintained that all normal education should be under government support and control. Tuition is free; in

many cases, free board is also provided. To meet the urgent demand for primary teachers, a short course is offered in abbreviated normal schools which admit graduates of elementary schools for a four-year course; and some normal schools establish a special one-year course for graduates of the senior middle school or the senior vocational school.

Vocational schools are of two types: the junior vocational school, which admits elementary school graduates for a three-year course, and the senior vocational school, which provides a three-year course for graduates of the junior middle school or a six-year (sometimes five-year) course for elementary school graduates. Great emphasis is laid on practical work, to which the students are supposed to devote approximately half of their time. The official regulations require that vocational schools must be equipped with shops, factories, and experimental farm stations, or provide for such practical work in cooperation with farms, factories, and business firms in the community. There is no tuition as a rule, but a small fee is permissible.

Mention must be made of two important policies of the Ministry in regard to secondary education. The first is the maintenance of a high standard of academic achievement, not only in science but in all studies. The former *laissez-faire* policy had permitted the appearance of numerous secondary schools, a third of which were under private control and management, with varying standards, often very low. Since 1932, the Ministry has set definite standards in curriculum, in budget, in equipment, etc. to which all schools must conform. Moreover, official graduation examinations have been instituted for middle schools and normal schools to insure that the standards are attained.

A second policy is to discourage the increase of middle schools and to stimulate the growth of normal schools and vocational schools. Finding a condition of uneven development in which middle schools constituted 70 per cent of all secondary schools, normal schools 20 per cent, and vocational schools only 10 per cent, the Ministry ordered in 1933 that provincial and municipal budgets must be so apportioned that 40 per cent of the funds should be spent on middle schools, 25 per cent on normal schools, and 35 per

cent on vocational schools. Furthermore, national subsidies are given to assist the growth of vocational schools.

Higher Education. There are three types of institutions of higher learning: the college, the university, and the technical school. The college course consists of four years; a university contains three or more colleges, one of which must be science, pure or applied; and technical schools provide specialized courses of two or more years. In higher education, the emphasis is on quality rather than on quantity. While there is recognition of the great need of a more even geographical distribution of higher institutions in order to bring more equal opportunity to different parts of the nation, it is maintained that the most urgent problem is the improvement of quality rather than the increase of more institutions. After several years of drafting and revision, standards of college curricula have now been promulgated by the Ministry. Minimum standards of budget and equipment have been in effect for some years. Effort is now being made to institute uniform entrance examinations and graduation examinations conducted by the government for all colleges and universities.

The promotion of science is a major policy in higher education. Private as well as public colleges and universities are given special grants to develop their science departments. Administrative measures have been adopted to restrict enrollment in non-science departments and to encourage more students to take up the study of technology, science, agriculture, and related fields. As a result, the proportion of students enrolled in science departments has increased noticeably in recent years. While in 1929 it was found that the science students constituted only 26.9 per cent of the total enrollment of higher institutions, the percentage rose consistently every year since then until it reached 44.4 per cent in 1936; and among new students admitted in 1939, 59.4 per cent were registered in the science departments.

Space permits only a brief mention of the new attention given to the preparation of secondary school teachers. The latest development is the establishment of higher normal colleges, either independently or in connection with national universities. The normal college offers a five-year course which pro-

vides for a proper balance between the knowledge of teaching subjects and the knowledge of education and psychology. With free tuition, free board and lodging, it is hoped that the program will draw more talented young people into the teaching profession.

There were 108 institutions of higher learning on the eve of the war in 1937. The destruction of these institutions and their stubborn determination to carry on under adverse circumstances have now become an epic story. Of the 108 institutions, 91 were directly affected by the war: 25 were forced to close down, 14 suffered complete destruction of their buildings, 15 were victims of air bombing, and 37 had to move to new quarters.

While some institutions had foreseen the danger and had made preliminary arrangements to establish new quarters and to remove a part of the most valuable equipment, others did not contemplate removal to new quarters until the invaders were virtually at the door. In the latter cases, the migration to new quarters often consisted of no more than a determined band of faculty and students who set out on foot without definite knowledge of what the future had in store for them and who had to travel in scattered groups and under disguise to avoid the interception of the invaders. The migration of some institutions from the coast to Szechwan covered a distance of 1,000 to 2,000 miles by devious routes, partly by train, partly by boat, partly by trucks, and partly by foot.

By the end of December, 1939, it was estimated that the losses sustained by institutions of higher learning had amounted to more than ninety million dollars. Yet, despite these heavy losses, the Ministry of Education reported at the end of 1940 that 113 higher institutions were carrying on actively and had enrolled for that year 44,422 students as compared with 31,188 students in 108 institutions in 1937. Moreover, this growth has been accompanied by positive gains in the strength of institutions and in a more even geographical distribution of institutions in different sections of the country. For some years before the war, the Ministry of Education had been urging the amalgamation of smaller institutions into large and strong universities and the elimination of wasteful duplication and competition in a few large cities near the coast. Since the migration of

universities in wartime, universities have pooled their resources to form such strong institutions as the Northeast Joint University and the Southeast Joint University, each of which represents the combined strength of three or four independent universities. Furthermore, the migration has brought higher education to areas hitherto much neglected, and has gone far toward equalizing the opportunity for higher education in different parts of the country.

Adult Education. In a country with such a high percentage of illiteracy as China, the importance of adult education is obvious. Early experiments in adult education started at the time of the first World War, when James Y. C. Yen and other Y. M. C. A. secretaries organized literacy classes for Chinese laborers in France. The experiments were continued in China after the war under the auspices of the Y. M. C. A. until a National Association of Mass Education was organized in 1923. In later years, the movement turned more and more in the direction of rural reconstruction and the improvement of daily living.

In the meantime important language reforms greatly aided the progress of mass education. Under the leadership of Professor H. C. Chen and other scholars at the Southeastern University in Nanking, an effort was made to determine the most commonly used characters of the Chinese language. One thousand most useful characters were later chosen to be the basis of instruction in literacy classes. The introduction of a system of phonetic symbols made it easier to teach a uniform pronunciation of the characters and gave impetus to the unification of the spoken language throughout the nation. Most important of all was the "literary revolution" initiated by Dr. Hu Shih (now known as the Father of the "Chinese Renaissance") and others, which unified the spoken and the written forms of the language and produced a new literature more accessible to the common man.

In recent years, the National Government and the provincial authorities have paid increasing attention to adult education. Various agencies are employed for the liquidation of illiteracy and the spreading of information for the betterment of daily living. Much is heard in China today of social education,

which refers to a wide range of educational agencies, such as the museum, the library, the cinema, the radio, the drama, the public athletic ground, the adult school, evening classes, etc. The methods of social education are not stereotyped; numerous experiments are being carried on to find out the best means of reaching the common people of the towns and villages. Traveling libraries, schools on wheels, traveling student troupes combining entertainment with instruction, mass singing: these are among some of the means found to be effective in meeting the needs of the masses whom the elementary and higher schools have not reached.

A comprehensive plan was adopted in 1940 for the promotion of adult education through citizen schools. The plan looked forward to the obliteration of adult illiteracy within five years by gradual stages. In the first two years, a citizen school was to be established in every three *pao*, which is a unit of political organization consisting of ten to fifteen families. The goal was to have a citizen school in every two *pao* in the third and fourth years and one in each *pao* in the fifth year, hoping thus to reach the entire illiterate population. Progress in this plan has been uneven in different provinces, but the report of the first year showed a number of provinces able to keep up with the schedule, while some localities have even exceeded the mark set by the five-year-plan.

War-Time Policies. The war in China is known as the twofold task of "resistance and reconstruction." In the reconstruction program, education naturally occupies an important place. Great effort is being made to enforce universal compulsory education and to improve the quality of education in the secondary and higher schools. Technical education and scientific research are given a more prominent place than ever, equal emphasis being laid on agricultural and industrial needs. At the same time, there is a growing recognition of the importance of the social studies as a means of reëvaluating the traditional Chinese culture and the new ideas that have come from the West.

In the schools, the guidance of youth is given closer attention. Measures are introduced to promote close personal relations between teachers and students. A form of extra-

curricular tutorial system is now required in all schools and colleges. Moral training and physical training are two phases which are much stressed.

T.H.E.C.

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CHOATE FELLOWSHIPS—See SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

CHORAL SPEAKING. Choral speaking is the recitation of poetry or rhythmic prose by a group of individuals. It is a form of artistic expression traceable to the dramas of classical Greece. The chorus was used by the various Greek dramatists to provide narrative, to heighten emotional effects, and to interpret chants, lamentations, and incantations. Euripides' *The Trojan Women* is a good example of a classic play that employs choral and antiphonal speaking with artistic effects. Modern plays that likewise make use of choral speaking include T. S. Eliot's *Murder in the Cathedral*, and the *Scenes and Plays*, written expressly for choric interpretation, by Dr. Gordon Bottomley. While unison or refrain speaking has been used in the theatre and the church for ages, choral speaking as a means of interpreting literature is of rather recent advent.

The modern interest in choral speaking is said to have been crystallized in 1922 at Glasgow, Scotland, where Marjorie Gullan founded the first verse-speaking choir with the encouragement of the poet laureate, John Masefield. Since then the movement has spread throughout Europe, South Africa, and America. It is now an accepted method of teaching poetry in many elementary and secondary schools, and representative colleges and universities offer courses in Choral Speaking and The Teaching of Choral Speaking.

Choral speaking has been received enthusiastically by many educators who attribute to it social, psychological, cultural, and vocational values. Speech educators use choral speaking as (1) a technique to improve the voice and articulation of their students, (2)

a means of teaching the oral interpretation of literature, (3) an extra-curricular activity for interested students.

The members of the verse-speaking chorus are usually grouped according to voice quality. *Light*, *medium*, and *dark* are terms that have been adopted to describe the three main kinds of voices. These terms roughly coincide with the *soprano-tenor*, *mezzo-baritone*, and *alto-bass* categories of the singing voice. If the group is large—fifteen or more members—it is customary for a leader (usually the teacher) to conduct the group. After the selection has been decided upon, the meaning and interpretation are discussed and the lines are assigned to individuals, groups, and the entire chorus. Thus, whether the selection is a Mother Goose Rhyme rendered by a chorus of kindergarten children, or a sustained poem like Vachel Lindsay's *The Congo* interpreted by adults, a variety of effects may be obtained.

J.F.B.-1

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CHOREA. Chorea, commonly called St. Vitus's dance, is a disease in which the most prominent symptoms are involuntary grimaces; jerky, twitching movements of the body; and emotional instability. Motor co-ordination is impaired and the child stumbles, often falls, drops things, and has difficulty feeding himself. He cries easily, is cross and irritable. Schoolwork is, of course, affected because thinking is disorganized and there is difficulty in remembering.

Chorea is usually regarded as a manifestation of a rheumatic infection and is commonly associated with tonsillitis, arthritis, and endocarditis. It is most prevalent between the ages of five and fifteen, affecting girls more frequently than boys. Treatment consists primarily of rest and seclusion. F.K.M.

CHRISTIAN BROTHERS—See INSTITUTE OF THE BROTHERS OF THE CHRISTIAN SCHOOLS.

CINCINNATI PLAN. To the late Dean Herman Schneider of the University of Cin-

cinati goes the honor of establishing and developing co-operative education at the college level in the United States. Dean Schneider would have been the last person to claim that the basic concept of cooperative education was entirely original with him. Students of industrial history are aware of similarities between the Fellenberg movement in Switzerland (and its offshoot, the manual labor movement as organized in the United States in 1820 by Joseph Neef and William McClure) and cooperative education as developed at Cincinnati and elsewhere.

The Cincinnati plan, also called the Schneider plan, provides for completing college requirements by a combination of work experiences off the campus and instruction on the campus. Instead of giving shop training to engineering students on the campus, the students are trained under actual employment conditions. The student is paid for his off-campus work, which is carefully selected to fit into the curriculum requirements. (See ANTIOCH PLAN; COOPERATIVE EDUCATION.)

F.T.S.

CIRCLE GRAPH—See GRAPHIC METHODS.

CITIZENSHIP, EDUCATION FOR (Civic Education). Education for effective citizenship is one of the most widely accepted goals of public education. It is recognized as vital for the continuance of the democratic way of life, although there is no agreement as to the best method of developing social competence. Practice varies all the way from aiming at democratic goals under firm administrative direction to allowing considerable personal choice to pupils in planning their curriculum and activities.

"The school is the outstanding agency in civic instruction, but it is closely related to other instrumentalities of political education such as governmental agencies . . . political parties, special patriotic organizations . . ." Especially after World War I there was much alarm at the lack of citizenship training in isolated communities and among foreign-born groups. Various organizations such as the American Legion have sponsored adult programs in the effort to remedy this situation.

The founders of the American republic championed education as basic to the welfare

of the state. The compulsory school attendance laws of the states have been instituted for the primary purpose of assuring a literate citizenry. But civics as a school subject was fairly slow to develop. The great influx of immigrants in the nineteenth century made some instruction in the American form of government especially desirable, but it was not until well after the Civil War that even a minority of schools began to offer courses in *civil government*. The report of the Madison Conference of 1892 indicated that about one-sixth of the elementary and one-third of the high schools offered such courses. The recommendation was made that American history and civil government be taught in the last years of the elementary and of the high school. Subsequent committee recommendations and influence by non-school agencies and state laws in time resulted in practically universal offering of civics, which is now a recognized part of the social studies (*q.v.*). Civics as a school subject is at present customarily offered at the ninth grade as "community problems"; and at the twelfth grade as a separate half-year course in government, or as part of a "Problems of Democracy" course.

The early teaching of civics was usually a formalized textbook approach, frequently consisting of requiring pupils to commit the Constitution to memory. Even in later improved form it stressed the structure and machinery of government rather than its function, with little relation to the individual citizen. After 1900 the emphasis shifted from the Constitution to the citizen, and the introduction of *community civics* tended to provide a more realistic approach.

No graduated scheme of citizenship training has yet been devised. There is, however, a general recognition of the sequence of training elements from the simple recognition of symbols to the highest appreciation of the ideals of America. In the primary grades stress is placed upon the flag, creeds, patriotic songs, and simple projects of national and community service. These symbolic forms are also studied in the middle grades and are given theoretical bases in some geographic elements and in the stories of the exploits of national heroes. In the junior high schools much attention is given to American history and community projects and

studies. Formal civics is a fairly standardized study for grade nine. In the senior high school the students generally study American government and through another course in United States history and problems of democracy they secure a better historical basis for citizenship. International cooperation, fundamental rights, civic duties, concepts of democracy, and the problems of a highly integrated society are stressed and explained. At this level many classes render community services and carry on national political conventions, mock courts, peace conferences, student government conventions, and other forms of activity designed to prepare them for adult political participation.

Administrators and classroom teachers have also shown considerable resourcefulness in devising experiences outside of the regular course content designed to promote training in democratic living. In the elementary school the child is introduced to the ideas of cooperation and interdependence as they operate in his school, his family, and his community. He may observe the activities of the school clerk and the janitor to learn that these individuals make a real and necessary contribution to the life of the school. The post office, police station, and fire house are frequently visited so that the child may learn how necessary each is in contributing to group living. Through these means the child very early becomes aware of the relationships, the responsibilities, and the privileges of life in a democratic society. He learns to take proper care of school equipment, respect the rights of his comrades in play and in conversation, "take his turn," and develop socially sanctioned manners. Thus the fact is increasingly emphasized that any service is important and that the participation of each person according to his abilities is essential to effective democratic living.

The increased maturity of children in the intermediate grades permits the introduction of more highly organized forms of participation. Children have nearly always been invited to help with routine activities as a help to the teacher, but the relationship upon which this depended was usually confined to the direct one between teacher and individual pupil. The organization of classroom committees, clubs, and councils enabled the children through their own organizations to

assist with both minor and major school problems. Room committees usually assist with such responsibilities as keeping the room and display materials in good order, distributing and collecting materials, keeping a bulletin board up to date and attractive, checking attendance, and similar routine activities. Clubs and councils frequently give valuable assistance with such larger concerns of the school as safety, health, maintenance, and community contact. In this way a sense of individual and group responsibility may be evolved, along with the skills of social cooperation and adjustment. Through cooperative planning, involving practice in the democratic procedure of discussion, acceptance of majority decisions, and cooperative execution of projects, the pupils also learn to develop the qualities that make for leadership and cooperative endeavor in all aspects of group living. (See CLUBS, SCHOOL; SELF-GOVERNMENT; STUDENT COUNCIL.)

Opportunities for democratic practice in considerable number are provided on the high school level. Innumerable examples of learning opportunities in out-of-class and community relationships have been related in a survey of ninety representative secondary schools.¹ In some of the schools surveyed, pupil conduct was controlled through group regulation and enforcement. Committees appointed through the student councils frequently took charge of all the details of formulating regulations; policing halls, assemblies, and activities; and bringing offenders to trial. In other schools, individuals were placed on their own responsibility within a framework of group spirit developed through conscious effort on the part of all pupils. Some schools utilized student help widely in management and care of equipment, grounds, and such services as cafeterias and libraries. Many examples were found of student organizations to guide and advise new students. Realism in civic education was increased in many centers by relating the school to the community through surveys, campaigns for local improvements, and cooperation with various civic and social agencies. Students thus learned directly that citizenship requires personal service. The case book¹ says of these activities (p. 192): "These are the laboratories of democratic living. Here boys and girls have opportuni-

ties to learn through practice the lessons of shared planning, group deliberation, action for the general welfare, and personal responsibility, which are the stuff of the democratic fabric."

The war has provided the schools with further opportunities for training in cooperation with the national welfare. Many high schools have Victory Corps which carry out a highly organized program of student help and participation. Both elementary and secondary school children take part in scrap metal drives and civilian defense activities. Out-of-class as well as class activities are keynoted with the desire to make pupils conscious of the advantages of democracy and a determination to demonstrate its efficiency.

Citizenship training as given in the school is still criticized, however, as unrealistic and impractical. The schools seldom give attention to the history of institutions other than the state, and democracy as a social process receives scant notice. Most textbooks have narrowly identified democracy with the extension of suffrage alone. The report of the Regents Inquiry in New York State revealed a disturbing picture of poorly informed and uninterested high school pupils who were negligent in discharging the simplest civic duty.⁴ The fact that in the country at large fewer than 40 per cent of the voters cast ballots in the election of November, 1942, the first congressional election after the United States became embroiled in World War II, revealed an apathy which is a serious reflection upon all agencies of civic training, both within and without the school.

There are some hopeful prospects, however. The Educational Policies Commission (*q.v.*) survey¹ revealed many promising practices involving cooperative planning and execution of socially useful jobs with widely shared responsibility. It revealed conclusively that in spite of differences in concept and approach, administrators, teachers, students, and citizens in every instance which was described sincerely wanted to make democracy work and believed that education was a powerful instrument for that purpose. Among demands stimulated by the war for changes in the program to meet the crisis there appeared an eloquent plea for a reorganization of the curriculum so that every high school and college student would devote two hours a day

five days a week to a discussion of problems of world significance and a close study of current history. This volume proposed twelve specific units and furnished lists of supplementary readings and other materials (Meyer, Walter E. and Coss, Clay, *Education for Democratic Survival*, Washington, D. C.: Civic Education Service, 1942). The complexity of the many and intricate problems on which the rank and file of American citizens will have to pass judgment makes it imperative that in their formative years citizens may acquire a common body of facts, understandings, loyalties, and skills. If democracy is to survive, civic education must keep pace with mechanical and military advances.

The schools have recognized that we have failed to impress newly arrived citizens with the significance of their new status. Some approach to the Ephebic Oath taken by Athenian youth is achieved by the citizenship day ceremonies at Manitowoc, Wisconsin. Many schools encourage student participation in school government (See publications of National Self Government Committee, 80 Broadway, New York City). Some schools award a rating for "citizenship" apart from marks for specific subjects, and this factor is frequently taken into consideration in nominations for honor societies or awards at commencement. The best school practices recognize that effective training for citizenship should provide for a broad-gauged concept of democracy, social and economic as well as political, and should instill lasting devotion to the principle of cooperative action for the common good. (See AMERICANIZATION; SELF GOVERNMENT; SOCIAL STUDIES, TEACHING OF.) E.B.W. and H.T.M.

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CITY COLLEGES—See MUNICIPAL COLLEGES AND UNIVERSITIES.

CIVIC EDUCATION—See CITIZENSHIP, EDUCATION FOR.

CIVICS — See CITIZENSHIP, EDUCATION FOR; SOCIAL STUDIES, TEACHING OF.

CIVILIAN CONSERVATION CORPS, EDUCATIONAL WORK OF. Conceived as an emergency relief measure for unemployed youth in the depth of the depression, the Civilian Conservation Corps (hereinafter called the CCC) was established in 1933. It was abolished by Congress in 1942, as the demands for youth in the armed services and in wartime industries eliminated most of the youthful unemployed of the nation. In its peak year, 1935-36, it enrolled 459,000 youths and expended \$490,109,000, of which \$102,391,000 was paid to enrollees. The CCC was originally patterned somewhat after work camps organized for youth in certain of the European countries, notably England and Germany.

While the entire plan of the CCC was in a sense designed to be broadly educative, the organized features of an educational program in the camps were delayed for several months after their initial organization. As the need for filling constructively the unused evenings and leisure time of the enrollees became more evident, plans were inaugurated for definite instruction, and an organized program of education and recreation was started in May, 1933. The primary step was taken in this phase of the program through adding a staff member to most camps as "Educational Director". The first of these were selected and assigned to camps in February, 1934. While directly responsible to the Army officer in charge of the camp, the Educational Director served also under the direction of a district adviser and a Corps Area Adviser.

The educational task within a camp called for ingenuity, resourcefulness, leadership, and persistence in conducting a pioneer educational task under difficult circumstances. The type and value of the educational program in each camp varied somewhat proportionately in the degree to which the director possessed these qualities and the extent to which he could secure and inspire the cooperation of the men with whom he worked.

In many camps, uniquely successful programs of broad education, built upon the wishes and the needs of the individual en-

rollees, were carried forward. Classes in varied fields ranging from informal groups studying problems growing out of their daily work in forestry, soil conservation, motor mechanics and the like, to more academic courses in elementary skills, business subjects, and regular high school courses were taught in the camps or by correspondence study. In other camps, the educational program simmered down to a few classes, poorly attended, with a tendency to resort to compulsory attendance, and an indifferent attitude on the part of both boys and the camp officials.

In general, the educational program showed continued improvement as advisers and their associates in the camps experimented progressively with informal procedures, secured equipment and library facilities, and grew familiar with handling groups of young men with greatly varied interests and abilities.

If the CCC is revived, the results of this unique educational undertaking should prove of considerable value in planning more effectively the educational task in the camps. Probably the camp educational program could best serve the purpose of general physical conditioning combined with exploratory types of individual and class work and counseling, after which the enrollees could be sifted for technical, vocational, and other training into public and special schools better equipped to fulfill those special functions. R.J.M.

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CLAPAREDE, EDOUARD (1873-1940). The late Professor Claparède's personal history and his professional career were thoroughly harmonized so that his scientific and pedagogical work clearly reflected his basic personality characteristics. He is noted for a life-long perseverance against authoritarian dogmatism of any sort, in keeping with the spirit of his hardy refugee ancestors who, after the revocation of the Edict of Nantes, emigrated to the Suisse Romande from the French Midi. The Huguenot principles of liberal Protestantism vividly symbolized for him the principles and methods of free inquiry—and to these he dedicated all his professional and civic activities as physician, educator, psychologist, reformer, family man, and proud citizen of the city of Calvin and Rousseau. As a young interne, while working at the Salpêtrière, he was deeply aroused by the then acute Dreyfus affair which almost led him to spend more time on pro-Dreyfus debating than on his neurological studies. In the last decade of his life, he was to be similarly roused to an ardent stand against the principles and methods of Nazi Germany. Many a refugee student and scholar owes a debt of gratitude to this gently fearless Servetus of modern times. Some of his closest friends feel that the fall of France was directly responsible for precipitating his death.

Following in the footsteps of his distinguished relative, Flournoy the neurologist, Claparède early in 1904 took over the direction of the first independent psychological laboratory divorced from the faculty of philosophy. He continued with this work at the University of Geneva until his death. Earlier, in 1901, he founded jointly with Flournoy the well-known *Archives de Psychologie*. In 1912, with the assistance of Pierre Bovet, he established the famous Rousseau Institute, a teacher training institution which eventually was to become affiliated with the University of Geneva.

While he did distinguished work in many fields of psychology and also continued with part-time clinical practice in neuropsychiatry, Claparède felt that general psychology as a young experimental science needed to lean heavily on child psychology and educational psychology—if the psychologist was to keep his feet on the ground. Continuous contacts with children in the laboratory and in class-

rooms were to provide psychologists with what the physician can learn about human motivation through clinical patients. Psychology and child education were fundamentally inseparable fields of study for him. One cannot "teach" children without the help of a sturdy, realistic child psychology. These thoughts were eloquently expressed in his famous *Psychologie de l'enfant et pédagogie expérimentale*, published in 1909 and translated into ten languages.

Of his own research efforts, his findings on the prior appearance in children of the ability to distinguish differences before they are aware of similarities, in the face of seemingly contrary behavior of children in actual problem-solving activities, are of direct relevance to educators and educational psychologists. These and other studies on childish perception and selective attention had a direct influence on the whole series of investigations by Piaget (*q.v.*) and his collaborators, and on the work of Rey and other child psychologists.

The Rousseau Institute is the living embodiment of Claparède's most significant achievements. Basically a normal school, specializing in the pedagogy of preschool, kindergarten, and grade school children, it has been from the first an outstanding center of child research. It includes the well-known *Maison des petits*, a progressive, experimental nursery school and kindergarten. Students at the Rousseau Institute have an opportunity for field research and practice in several demonstration grade schools affiliated with the Institute. Numerous studies in child and educational psychology were published from it in the *Collection d'actualités pédagogiques*, published under the joint auspices of the Institute and the *Société belge de pédotechnie*, and in the *Cahiers de pédagogie expérimentale et de psychologie de l'enfant*. At the Institute, Claparède gathered and inspired a noted group of fellow investigators, students and teachers, including Descoeudres, Bovet, Piaget, Baudouin, Antipoff, Loosli-Usteri, Rey, and Meili. It is from this seat of his true labors of love that he diffused his influence in the field of progressive education—an influence exerted upon a great number of undergraduate and graduate students, practicing and prospective educators from Europe, the Near East, and North and South America.

In keeping with certain principles of Pestalozzi, Montessori and Dewey (*qq.v.*), Claparède emphasized and supported progressive teaching methods possible chiefly in activity schools. It was in ever improving activity schools that he saw real possibilities for increasing collaboration between a truly experimental pedagogy and a realistic child psychology. E.L.

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CLASS INTERVAL (STATISTICS)— See FREQUENCY DISTRIBUTION.

CLASS MANAGEMENT. Good class management provides a social and material environment favorable to efficient and stimulating teaching and learning. It provides the clean, orderly, comfortable, and stimulating atmosphere in which the real business of the class—productive learning—can thrive. The problem is not only how to achieve this positive environment but how to do so without setting it up as the major criterion for evaluating classroom activities and making it of such moment that it rivals productive learning activity in its demands on time and attention. The painter needs a good light, a well-constructed easel, paints of the correct consistency, and brushes that won't shed, yet he could do little painting if he had to fuss and bother continually with these things. Similarly, the correct regulation of air, heat, and light; proper seating; care and distribution of supplies; selection and use of decorations; and the efficient use of class time are all indispensable to learning, provided they are given their proper auxiliary place in the classroom pattern.

Cleanliness: The custodian and his staff are responsible for the cleanliness of the classroom when the bell rings for the first morning class. Thereafter, until dismissal

time when the mop and broom again come into play, the cleanliness of the classroom is the concern of those who use it. Part of the teachers' (and parents') task is to develop in children the habit of tidiness, of, for instance, discarding wastepaper in the proper receptacles rather than on the floor, in desk drawers, or behind radiators. The teacher can do much to encourage proper disposal of wastepaper by making it convenient to do so; baskets should be placed at easily accessible places in the room, and one should be placed at each exit so the student may discard his wastepaper as he leaves. The cleanliness and neatness of the classroom should be a student responsibility, and such tasks as keeping floors and blackboards clean might well be assigned and carried out by the students themselves throughout the school year. When the room is used by many classes during the day it should become the custom for each class to leave a clean uncluttered room for the next group. A school-wide tradition of cleanliness, once established as a classroom habit, will need little further attention.

Comfort: Many aspects of heating, light, and ventilation are beyond the teachers' control. If the construction of the building has been so ill-adapted to the purposes for which it was built that no satisfactory scheme of ventilation is possible, and if the provision for artificial and natural lighting is inadequate, then the teacher cannot create ideal physical conditions. On the other hand, he can do much to make the physical conditions measure up to the fullest potentialities of classroom design and available equipment. (See BUILDINGS, SCHOOL; LIGHTING, SCHOOL.)

At least two major controls for room lighting are within the power of the teacher—the use of window shades to reduce or modify excessive or incorrect natural lighting, and the use of artificial lighting to supplement insufficient natural light. The following rules on lighting should be observed by the teacher: (1) Each student, when writing, drawing, reading, or otherwise engaged in seat work, should not have to contend with shadows on his working surface. It is to be remembered that the traditional light-over-the-left shoulder rule does not apply if the student is left-handed or when overhead lighting is possible. (2) Glare should be eliminated as far as possible. Sunlight shin-

ing directly on a working surface—a book, paper, or blackboard—is injurious to the eyes and decreases visibility. Judicious use of window shades can eliminate this problem. (3) Dull cloudy days generally do not provide enough natural light for the classroom; all shades should then be up and artificial lights used, particularly along the side of the room opposite the windows. (4) The teacher should not stand before a window during a class activity that requires the students to give him frequent attention. With the source of light behind the teacher, the children are forced to look directly into the light.

The optimum classroom temperature has been found to be between 67° and 73°, with a humidity slightly below 50 per cent. In some modern schools temperature, humidity, and air movement can be controlled by mechanical means. Where this is not the case, the teacher should keep on hand a reliable thermometer so that windows may be opened or radiators turned off for a time if the temperature rises beyond advisable limits. The physical efficiency of the human body has decreased as much as 15 per cent at 75°, when 68° is accepted as the standard. Direct drafts should be avoided in ventilating a room. As the beginning of every class hour the teacher should check temperature, ventilation, and lighting. If this is done regularly the likelihood of poor light, bad air, or overheated rooms will be reduced to a minimum.

Order: The maintenance of classroom order is an exercise in cooperative social living. For this reason, it is educationally wise to encourage students to assume a large rôle in classroom administration, since it is but a step from classroom civics to community civics. Active student participation and responsibility are much better training for citizenship than is submission to teacher dictation and domination. Certain aspects of class management lend themselves particularly well to student responsibility. The care and distribution of supplies and the setting up of equipment, for instance, can well be entrusted to student committees. These committees are best rotated in personnel so that each child has the opportunity to take part sometime during the semester, or if that is not advisable, the assistants may be part of

CLASS MANAGEMENT

the slate of class officers elected by the class, to continue in office for a fixed period or for as long as they discharge their duties efficiently. The teacher can furnish the committee with a statement of needed equipment and supplies for each day and allow the members to work out the best scheme of distribution, collection, and storing.

The practice of courtesy is an important feature of social living in the classroom. Rules regarding the amount of conversation and movement permitted during an activity period, the ways to conduct an orderly discussion, the rotation of routine responsibilities, such as passing the basket, erasing the board, collecting papers, checking supplies, etc., are followed more satisfactorily if the students have had a hand in drawing up the regulations and in enforcing them. Such student participation in class management involves more time in its organization at the beginning of the term than does the method of teacher dictation, but it makes for the better training in social living and is likely to run more smoothly because its source of power and direction is within the student group. (See *DISCIPLINE*.)

Routinization of Activities: The fixed, mechanical aspects of classroom management are best routinized. Routine is desirable whenever the habit formed saves time and effort, conserves material, or lessens confusion. It may be needed to produce orderly procedure, or to promote children's health, or to insure safety in case of emergency. Such activities as the collecting and distributing of supplies, taking attendance, regulating ventilation, and lining up for fire drill may be routinized. On the other hand, routine should not be applied where variability or freedom of action and alertness of mind are needed. Teaching and guidance procedures should not be routinized. The teacher whose teaching procedures are so well routinized that the students know his explanations are followed invariably by a period of note taking, then by a question-and-answer recitation, and then by a short test can destroy interest and initiative and lower the effectiveness of learning. Learning at its best is a process of stimulating discovery; routinization of learning defeats that purpose.

Classroom Decorations: Decorations in classrooms include all features that add to

the appearance of the room. They give color to floor, walls, and ceiling, and include such common decorative and useful objects as window shades or Venetian blinds, small shelves for attractive articles, flower receptacles, and illustrative materials for display. Even such learning aids as charts and maps have decorative value. The wise selection and appropriate arrangement of ornamental materials contribute much to pleasant study surroundings.

Classroom decorations may serve educational as well as æsthetic purposes. When students know that it is their room rather than only the teacher's room, the decorating of the classroom becomes a socially useful project in applied art. The selection, mounting, and care of decorations should be a student responsibility, performed as much as possible by and for the students. This activity can give excellent training in æsthetic appreciation and cooperative effort, and can help motivate, enlarge, and enrich regular learning experiences of the classroom.

If pictures are selected with a view to their value as visual aids related to the work in which the students are engaging, and if they are placed at the child's eye level so they may be seen easily, they aid learning as well as add to the room's appearance. The old travel poster or the faded print of the muses ceases to fulfill educational or decorative purposes when it no longer has any function in class activities and has become as much a noncommittal part of the room as the plaster and the molding. Conversely, pictures of the Lake Country while the class is studying Wordsworth's poetry, photographs of scenes from a production of *The Merchant of Venice* when the play is being read, examples of student plans for a projected transportation exhibit—these serve a positive purpose, provided they do not linger on the walls or bulletin boards beyond their period of maximum usefulness.

When classroom decoration is seen from a functional point of view, it is usually temporary rather than permanent, reflecting the changes in student interests. Since the classroom is the children's living room for so much of the day, it should reflect the activities of its occupants. The appropriateness of classroom decorations depends, therefore, not on abstract criteria of beauty, but rather on

the interests and activities of the students who live there.

C.M.R.

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CLASS PERIOD: The length of time devoted daily by a grade group, or class of pupils, to instruction in a given subject-matter field is known as the *class period*. The length of the class period is determined by several factors: (1) the philosophy of education in which the school believes, (2) the physical and mental maturity of the pupils, (3) the physical facilities, such as size and number of rooms in the school, (4) the number of pupils to be housed in the school building, (5) the number of teachers available for instructional purposes, and (6) the requirements set by state departments of education and by regional associations.

In the elementary school the current practice is more and more toward breaking away from a definite time limit for pupils to spend daily in studying and reciting in each separate subject field. The trend is toward setting aside large blocks of time in which attention may be given to activities and interests in which content materials may be utilized from a number of traditionally considered subject-matter fields.

In the secondary school the trend described for the elementary school is less marked. The length of period for classes in the secondary school ranges from forty minutes to eighty minutes in some schools. In recent years the trend has been clearly in the direction of the lengthened period. Instead of having pupils study independently for a short period and then go to a classroom for class recitations, the lengthened period has become a period in which directed study and recitation are both included without any definite division of time for each purpose.

In college the period is usually fifty minutes in length for the academic subjects, such as English, Latin, French, history, etc. For laboratory subjects, such as chemistry, physics, physiology, biology, etc., the class period is often lengthened to twice the length (100 minutes) of the period for the academic subjects. This latter practice is also common with the subjects in the practical arts field, such as, industrial arts and home economics. (See PROGRAM, DAILY; and SCHEDULE, DAILY.) O.G.J.

CLASS SIZE. The number of pupils in a class unit administratively under the direct and continuous guidance of one teacher generally indicates the class size. The average class size in a school or a school system is distinguished from the pupil-teacher ratio in the sense that the latter often includes in its computation nonteaching personnel such as librarians, counselors, and grade advisers. Class size is one of the component factors of the service load (see TEACHER LOAD), with which it is sometimes erroneously made synonymous. Included in the service load are all the activities and conditions that require time, energy, and attention in the line of the teacher's professional duties and interests.

Though class size increased sharply after 1914 in both elementary and secondary schools, reaching the highest point in the early 1930's, recent years have witnessed a tendency toward decrease, which was temporarily interrupted by the effects of the depression. The high schools, however, reached the peak of class size about five years later than the elementary schools. According to one study published in 1940, cities of more than 2,500 population report that the average size of kindergarten classes was 30, elementary school classes 34, junior high school classes 33, and senior high school classes 30.

The determination of the established class size for schools or school systems usually has been affected most by the size of school enrollment and the financial status of the community. Increase or decrease in class size generally has gone hand in hand with increase or decrease in enrollment. Declining birth rate, decreased immigration, lack of employment opportunities in time of depression, shifts of population, and induction of pupils into the armed forces in time of war have each, therefore, affected class size. Some

states have influenced the size of classes through their policy of providing state aid on the basis of number of units, each consisting of what is considered a fair number of pupils assigned to one teacher. Indiana, for example, has defined the teacher-pupil group in the elementary school as one teacher for 35 pupils. For the high school the unit is one teacher for 25 pupils.

Accrediting (*q.v.*) associations have regulations on the size of classes. These regulations which govern schools accredited by one or another of the agencies have a tendency to influence practice in nonaccredited schools as well. There is, of course, closer agreement on the maximum size of classes than on the minimum size, which is influenced by the number of children available and by economic considerations. Generally, too, the higher the school level the smaller the class size becomes. Though the effect of traditional practice has tended to stabilize class size in schools and school systems, occasional periods of financial stress, nationwide or local, generally have been reflected in increased class size.

The results of research in the field of optimum class size necessary for good teaching have not received as much consideration in the determination of established class size as has any of the other factors. The period of greatest interest in the study of desirable class size was between 1920 and 1930. Although there have been more than 250 studies since 1900, only about 70 can be considered experimental in nature. Of these, about a third included controlled conditions. On the basis of the pupil outcomes measured, the findings do not yield results conclusively favorable to either small or large classes. These results have been used by some school administrators and budgetary officers to justify increased size of classes. Other schoolmen, however, have hesitated to do this for fear of overburdening the teacher and losing educational outcomes not so easily measurable.

To yield usable results, investigations of class size are now needed which do not have the typical failings of previous studies. Of these failings, one is the wide variation and overlapping in the definition of small and large classes; for example, the range of small classes in various studies was from 7 to 35.

Another is the limitation of criteria of educational efficiency to measurable effects on pupils' knowledge. Failure to compare large and small classes in situations where appropriate, characteristic teaching techniques customarily have been applied has weakened the strength of many conclusions. Research on desirable class size should be concerned with the specific elements of the child's social and physical growth as well as his growth in acquired knowledge and skill. In addition, it should measure the comparative effects of class sizes on the instructional situation in the classroom, and on the teacher's health and stability as well.

One controlled investigation, representative of a growing interest in this larger point of view, was reported in 1943 by the New York Society for the Experimental Study of Education. In one phase of this investigation the findings of a similar nationwide study reported by the Research Division of the National Education Association in 1939 were completely corroborated. Teachers considered 31 a reasonable average size for elementary school classes; ranked class size very high among the burdensome components of teaching load; and reported that essential professional activities, particularly those concerned with treatment of individual differences of children, received inadequate attention by teachers twice as often in large classes as in small. When tested under objective conditions, teachers of smaller classes knew more about their pupils' educational, health, and socio-economic status than did those of larger classes. Under uniform and objective conditions small class size situations were observed to yield greater use of individualized techniques, greater diversification of learning activities and modes of expression, more indication of individual enterprise, and greater evidence of desirable social outcomes and social control based on cooperation, mutual planning, and participation.

Among the many factors that must be considered in determining the number of pupils who may work to best advantage in a class group are: (1) the type of administrative organization; e.g., the Platoon School may handle, successfully, more pupils in one group than could be served with some other plan, (2) the homogeneity of the group with respect to mental ability and interests, (3) the

social maturity of the group, (4) the type and amount of equipment and supplies available for the pupils, (5) the ability and ingenuity of the teacher, and (6) the type of activity in which the class group is engaged; e.g., a larger group might be taught in type-writing than in a foods class.

O.G.J.

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CLASS, SPECIAL—See SPECIAL CLASS.

CLASSICAL INVESTIGATION. *The Classical Investigation* was an exhaustive three year study of the status, objectives, content, and methods of Latin instruction in the United States. It was not a "round table" discussion as all previous studies had been, but an investigation which secured valid educational data through an extensive objective testing program and from the recommendations it gathered from thousands of successful and experienced teachers. The report answered, and greatly decreased, ill-founded criticism of Latin study. Where the criticism was valid, however, the report made recommendations to Latin teachers for improvement. The report received almost immediate acceptance by the progressive Latin teachers of the country, and it also furnished the pattern for most of the later important investigations of secondary education and its subjects.

The principal findings of the investigation were:

1. The aims of Latin secondary school instruction should be those which can be attained during the secondary school period.
2. The first two years' instruction should be reorganized to reduce the grammatical work not essential to reading Latin, to postpone the introduction of some of the essential grammatical principles to the second year, and to begin the reading of connected material earlier in the course.
3. Transfer of desirable habits, knowl-

edge, and skills is not automatic but should be consciously striven for, and content and method should be organized accordingly.

4. The traditional course should be modified to meet the newer objectives.

It is to be regretted that through lack of funds Part II of the report, giving all of the data of the objective studies, was never published. It is on file in the Library of Congress. (See LATIN, TEACHING OF, and CLASSICS, EDUCATION IN.)

R.H.T.

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CLASSICS, EDUCATION IN. To the Greeks civilization owes one of its greatest debts, for they emancipated the human mind from superstition and developed the ideals of individual freedom and democracy. In architecture, art, and literature their productions are among the world's masterpieces. Their writings have profoundly influenced almost all the world's best thinking, and our English and American literature is filled with references to them.

To the Romans, who also were imbued with ideals of individual liberty and who appreciated and copied the art and literature of the Greeks, we largely owe the transmission of this heritage to us. To them we owe our finest ideals of justice and administration. They provided the language of the Christian Church, of scientific and literary work, and of international intercourse, for fifteen hundred years. Their writings have profoundly influenced all modern writings.

It is difficult to gain a thorough insight into the workings of the minds of the Greeks and Romans except through the study of their works in the original languages. There will always be those who are not satisfied to derive their ideas of this civilization second-hand. They are its interpreters to the world at large.

The Greeks through their vivid imagination developed a beautiful mythology, which was preserved by the Romans. References to classical mythology pervade not only our best literature but even the pages of our daily newspapers.

Our language in its vocabulary is much more classical than Anglo-Saxon. Of the

17,000 most commonly used words in the English language, as contained in Thorndike's word list, 52% are of Latin origin and over 11% Greek. The real meaning of a well-written document is likely to be in the classically derived words it contains. The classics have long served as a rich storehouse from which most of our scientific, legal, and theological terms have been derived. A real feeling for the precise shades of meaning of these words can be secured best through a study of the classical languages in the original.

From the Renaissance until comparatively recent times the study of the two classical languages, and especially of Latin, formed the core of all higher education beyond the elementary level. As causes for this stress upon the ancient languages may be assigned first, the reverence with which the new humanism treated the rediscovered masterpieces of Greece and Rome; secondly, the essentially vocational nature of these languages in a society where higher education was reserved for those preparing themselves for such professions as medicine, the law, and the ministry, in all of which proficiency in Latin was essential to progress and success; thirdly, the long-continued use of Latin as an international means of communication in such fields as the sciences, philosophy, and diplomacy; and fourthly, the conservatism of a long-lived system of education. Even after Latin had ceased to be the *lingua franca* of the occidental world, it still retained its pre-eminence in education.

Only within the last seventy-five years has Latin, and with it Greek, given way to other branches of instruction in both the secondary schools and the colleges and universities of Europe and America. The major reasons for this change in relative popularity are probably twofold, both traceable to the democratization of the school and the corresponding increase in enrollment: first, the growing importance of vocational education in the high schools and colleges; and secondly, the growing number of fields considered essential for a liberal education. In addition, the premium laid by modern society upon the practical has put into disfavor those subjects the value of which is not immediately apparent, and has occasioned a rebellion against an educational philosophy based on ideals which had come to contradict those of the

general public.

Most American colleges no longer require a knowledge of Latin as a prerequisite to the granting of an A.B. degree; such knowledge remains a requirement only for graduate work in certain restricted fields. Greek has almost disappeared as a secondary-school subject.

Although the classicist is already well aware of the contributions which the continued study of the classics makes to the development of the secondary school and college student, the students themselves should also be helped to see the values they will obtain from such study. For the values of even an elementary study of Latin see the article on LATIN, TEACHING OF. These values apply in greater or lesser degree also to the study of Greek. For superior students with definite literary, historical, philosophical, or linguistic talent both languages are of exceeding value, in some cases essential. For the average high school or college student, Latin and Greek offer the same advantages as the modern foreign languages and with them form a group which constitutes an integral part of a meaningful liberal education. A brief course in the elements of the modern scientific vocabulary, which is formed largely of Latin and Greek components, is believed by many educators to be advisable for students of the sciences. Finally, since all who regard themselves as educated must know and understand the traditions of the culture they maintain, and since the culture of the Western World is largely dependent upon the elements contributed by Greece and Rome, it may well be that the educational future of the classics will no longer be so exclusively linguistic in form as heretofore. Many American colleges and universities are now giving courses in which the outstanding achievements of the classical world are presented to the student body in English, without the benefit of the original language. In the high schools, too, cultural material plays a large part in many of the new courses in General Language (*q.v.*), in which Latin and Greek and their *realia* play a part.

The able and interested student will continue to be drawn to the study of the classical languages and literatures for the reasons which have caused their survival to the present day. The contributions of the Greeks and Romans; however, must be made avail-

able also to those whose primary interests are not linguistic, æsthetic, or philosophic, but who are to be educated to an intelligent inheritance of the past. K.G. and R.H.T.

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CLASSIFICATION OF STUDENTS.

In practically all elementary schools and in some high schools children are taught as if they were at the same level of ability in all subjects. They are classified into "grades" and move from one grade level to the next at specified times if their work is evaluated as of promotional quality; otherwise they remain in the same grade until the next promotion date. Since there are exceedingly few cases, if any, where a child is at the same grade level of ability in all his subjects, class instruction at one grade level does not meet individual needs. The departmentalized system, where children may be at different levels in different subjects is not advocated for the elementary school since it means that the pupil has several teachers each day, with no teacher knowing him sufficiently well to give him the all-round guidance so necessary at this age level.

A few schools, emphasizing the education of the "whole" child and recognizing individual differences of ability and interest at every age level, keep children together in a class of their own age group, labeled the "Sevens" or the "Elevens" rather than Grade II or Grade VI, and make special provision by their teaching methods for adapting instruction to individual needs. In these schools there is no "promotion" in the usual sense of having achieved "passing marks" in subject-matter. Sometimes it is considered advisable to transfer a child from one group to another, but this is done not on any criterion of failure or of ability for rapid advancement but on the judgment that the particular child's development—mental, social and emotional—will proceed better in the group to which he is transferred.

In many city public schools where there are sufficient children of one grade level to

form more than one class, the popular method for adjusting to individual differences within a grade level has been *ability grouping* or *homogeneous grouping*, as it is often called. This procedure recognizes the fact that all children who are promoted to a particular grade are not of equal ability and it therefore divides them into several groups according to a combined criterion of I.Q. and general school achievement. This method of grouping children does not take into consideration the fact that a child is not at the same level of ability in all subjects and skills. The adjective "homogeneous" is thus a misnomer, although since achievement in every school subject has a positive, if often very low, correlation with I.Q., the range of variability is reduced.

Ability grouping has been condemned on the grounds that it is inadequate to care for differing mental abilities, that the method of segregating children often leads to personality maladjustments, and that the procedure is undemocratic and develops undemocratic character traits. It is easily demonstrated that ability grouping, used without any other reorganization of the grade system, is inadequate to care for variation in ability. Variation in I.Q. means variation in speed of learning. Schools having ability grouping nevertheless often expect all groups of the same grade level to complete the work of that grade during the same period of time. The "brighter" classes are given extra work to do on the same grade level to keep them going through the grades at the same pace as the slower groups. Thus the children least in need of repeating the same concepts in different contexts are the ones who get extra drill. Sometimes the "enrichment" program for the brighter classes consists of taking them on more trips and letting them have more first-hand experiences, while the duller children are given more verbal drill. While slow children can learn facts verbally by rote drill, they are the ones who need more direct first-hand experiences in proportion to the amount of verbal teaching given them, if they are to learn with understanding. These fallacies, added to the working assumption of the majority of teachers that once there has been ability grouping the pupils are alike in all abilities so that there is little need for further adaptation to individual differences,

condemn ability grouping in the eyes of many educators.

The argument against ability grouping from the mental hygiene point of view is based on the expectancy that the procedure will bring about an increase in inferiority feeling. While this is certainly true for some children, especially for those whose level of aspiration has been raised beyond their ability owing to the goals set them by parents, the effect is offset by other pupils who become better adjusted because face-to-face competition with superior children has been lessened. Schools that have adopted ability grouping have had no significant increase or decrease in maladjustments.

The argument that ability grouping is undemocratic is regarded as invalid by most educators if it means that all children must be considered as being equal in ability and that they must be taught alike. Democratic ethics, far from demanding that we disregard individual differences, demand that we so take care of individual differences that each person can grow to his maximum possible well-being. From the democratic point of view, the serious argument against ability grouping is that it may produce character traits not suitable in democratic citizens. If the brightest children, because of little contact with the duller ones, were to develop the attitude that the wishes and opinions of the masses need not be respected and that it is up to the aristocracy of the intelligent to decide what is good for all, then indeed ability grouping would be a dangerous educational procedure in a democratic society. Equally disastrous would be the acceptance on the part of the average and slow pupils of a submissive waiting-to-be-told-what-to-do rôle. Though it has not been proved that such attitudes need necessarily develop, their dangerous possibility has to be taken into account in the administration and teaching of ability groups.

There are other forms of ability grouping besides the procedure of "homogeneous" grouping within a single grade. In one or more grades of the school system, especially in junior high schools, the brightest of the groups instead of having an "enrichment" program is turned into a "rapid advance" class and helped to do the work of a whole year in half the time. Classes for the mentally retarded (defined as children having

I.Q.'s of 75 and lower), where yearly promotion from grade to grade is not expected, are a special instance of ability grouping, matched now in a few places with special classes for the very bright (usually defined as I.Q.'s of 130 and over), where the children need not slow down to do the work of only one grade in one year. These special classes differ from the ability groupings within a grade in that though they include only one area of intelligence, they consist of children of various ages and of various school grades because of the fact that at any age level fewer than 5 per cent of the children will be found to have I.Q.'s below 75 or above 129.

In high schools and colleges students are classified mainly in terms of the curriculum which they are pursuing. Ability grouping, or sectioning, is often carried out in courses where there are sufficient students to be so divided. In required high school subjects, a "three-track plan" corresponding to the XYZ ability grouping of the elementary schools is sometimes instituted. Since most high schools are departmentalized, it is possible to section students differently in different subjects. Special subject-matter prognosis tests can be used for placement instead of an intelligence test or a test of general achievement. The differentiation of high school curricula in itself is meant not only to result in a classification of students according to their interests but also according to their abilities. By and large, the brightest students are urged to pursue an academic curriculum (including mathematics, science, and foreign language) qualifying for college entrance, while the slower are advised to pursue a "general" or a vocational curriculum.

Classification of students according to sex, once so popular, is practically absent in elementary public schools of today. It sometimes occurs at the high school level and is more prevalent at the college level. Such classification is effected by providing separate schools for boys and girls rather than by segregating the sexes into different classes within one school. (See CO-EDUCATION.)

B.B.F.

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CLASSROOM (CONSTRUCTION AND DESIGN)—See BUILDINGS, SCHOOL.

CLEFT PALATE SPEECH — See SPEECH CORRECTION.

CLERICAL STAFF, SCHOOL. Authorities on school administration believe that school units with fifteen or more teachers should have at least a half-time paid assistant. If there are more than twenty-five teachers, there should be a full-time paid secretary. Such a person is considered to be a good investment even in smaller systems. One of the most appalling wastes in American education is the extensive use of high-salaried school administrators to do clerical work which can be performed efficiently by clerks at much less cost.

The use of pupil part-time help in the smaller school units is practiced extensively but is not universally regarded with favor. There are many functions of a school clerk which cannot or should not be performed by pupil workers. It is considered better practice to use a paid employee, for example a commerce teacher or librarian, to give part-time to important clerical work of the school. Certain routine tasks might well be performed by competent pupils as a part of their educational experience. The larger school systems employ additional clerks and make the services more specialized. When practicable, it is recommended that school clerks be placed under civil service regulations. Where civil service cannot be used to assure competence, a few qualifications such as the following should be adhered to for the superintendent's secretary or the main clerk in the school office: she should be a college graduate, preferably with some education courses; she should dress neatly; she should speak correct English; she should write and spell well; she should be courteous to visitors; and she should have a pleasant voice. Minor clerks might be of more limited and specialized ability.

The duties of the school clerk or clerical staff include: (1) general stenography; (2)

filing, indexing, etc.; (3) meeting people and answering questions, whenever possible sparing the administrator; (4) compilation of reports; (5) keeping records; (6) handling money; (7) taking telephone calls and making appointments; (8) keeping calendar of events and of reports or notices due; (9) taking care of office machines; (10) posting notices, mailing, etc.

Clerical service to teachers to relieve them of clerical duties which interfere with their teaching efficiency is advocated when the school unit is large enough to support more than one clerk. Where careful study has been given to waste of administrator and teacher time in routine clerical duties, school boards have found it good economy to increase rather than diminish clerical service. The greatest waste is in the smaller schools where too often no clerical assistance is provided.

J.E.G.

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CLINIC, SCHOOL. School clinics are usually provided by local boards of education for maintaining and, if possible, improving the health, both physical and mental, of school children.

The clinics organized by schools are of four kinds: (1) health; (2) dental; (3) educational; (4) child guidance. Sometimes two or more of these are combined for purposes of administration. The functions and personnel of these clinics vary with the type of service rendered.

The functions of the health clinic are (1) to provide special and periodic examinations of eyes, ears, and general health; (2) to prevent the spreading of communicable diseases; (3) to treat minor ailments and accidents; (4) to give health instruction.

Usually a full-time physician or a school nurse is in charge. When a nurse is in charge, the services of a part-time physician are always provided. In larger cities a staff of specialists is usually available. The clinics

CLOCK HOUR — CLUBS, SCHOOL

seek to improve children's health chiefly by detecting and preventing disease. Reports are made to parents who are urged to take the children to their family physicians or to specialists for treatment. In some states, however, schools provide supplementary feeding for undernourished children and arrange for glasses and other services when parents cannot afford them. One of the chief duties of the nurse is to follow-up the cases to assist where necessary in seeing that the children's needs are properly cared for. Accurate health records for each child are kept.

The dental clinics are usually in charge of a full-time dentist or dental hygienist. The services rendered at these clinics are (1) making periodic examination of the teeth; (2) cleaning teeth; (3) doing minor repairs; for example, filling small cavities; (4) instructing children in the care of teeth. In smaller school districts, dental clinics are often only part-time clinics.

Educational clinics are sometimes referred to as speech or reading clinics. While speech and reading correction constitutes a large part of the work of these clinics, deficiencies in other subject-matter fields are also treated. The functions of educational clinics are (1) to study the child's problem and diagnose the difficulty; and (2) to carry out remedial procedures. Specialists in diagnostic and remedial work are in charge of these clinics. Frequently psychologists are attached to these staffs to give intelligence and achievement tests and to render other psychological services. (See also REMEDIAL READING; SPEECH CORRECTION.)

Child guidance clinics (*q.v.*) are maintained by the schools of some of the larger cities to study and treat the behavior problems of children. The staff of these clinics is usually composed of a psychiatrist, in charge; a psychologist; and a psychiatric social worker.

Some few schools provide special clinics for orthopedic cases but these cases are most frequently served by the health clinic. (See HEALTH.)

M.S.Q.

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CLOCK HOUR — See PUPIL-CLOCK-HOURS.

CLOCK-HOUR COST — See FINANCE, SCHOOL.

CLUBS, SCHOOL. School clubs may be defined as organized groups of students whose interest and program center about some particular subject or activity, often beyond the scope of the regular curriculum. Usually a meeting is held once a week either on school time during the activity or club period, or after school. That this is a popular school activity is evidenced by the fact that the writer has found a total of 390 different clubs in American schools. The secondary schools have made more extensive use of school clubs than have the elementary schools, but the latter are organizing clubs to an increasing extent.

In addition to the development of friendships among students and the fostering of group loyalties, the main objectives of school clubs are to widen and to deepen student interests. A good schedule offers a considerable number and a wide variety of types of clubs—academic, recreational, service, personal culture, and independent cooperating organizations—which are open to all students with few or no limitations. Hence the student can widen his range of interests by selecting from this list. Some schools allow a student to belong to more than one club at a time; others allow him to belong to a club for a limited time only, say a year or two; these devices increase his "interest widening" possibilities. Interclub program exchanges and visits, and assembly programs and public exhibits reflecting club work also help in the widening process. In the second place, the club offers an excellent opportunity for the deepening of the student's interest by allowing him to specialize in the things that appeal to him.

Naturally, this widening and deepening of student interests can play a most important part in the discovery, development, and proper capitalization of the student's cultural, vocational, social, and recreational interests and abilities.

While perhaps not an objective of school clubs, certainly an important value is their influence in enriching, supplementing, and motivating curricular work. Club work is usually informal, nonuniform, is student-centered and student-dominated, and is voluntary. The fact that club work and class-work supplement each other is proved by the fact that academic clubs are beginning to disappear by being assimilated into the corresponding subjects.

The usual club setup provides for free and unlimited choice of clubs by the students, with restrictions only as to sex and size of group. Such restrictions as teacher-selection of members, student balloting, and fees, dues, and assessments are to be deplored. The only requirement for membership should be an appropriate interest in what the club has to offer.

Close supervision and continuous evaluation help to insure that club time is well spent. The formal chartering of a club by the student council, especially in the case of a new organization, also represents a valuable administrative technique. In its formal application for a charter, the group sets forth its purposes, name, membership requirements, organization, and activities. The council, after examining these carefully and finding them satisfactory, formally charts the club or suggests changes before making a final decision. Such charters may be revoked for good reasons. Formal initiations, secret signs, handclaps, passwords, insignia, and the like characterize the secret society and have no place in the club program.

Club activities center about the main interest of the group, and may take the form of formal and informal programs, individual and group projects, social and recreational events, interclub programs and visits, exhibits and assembly programs. Often a "club night" is staged for the general public. (See **EXTRACURRICULAR ACTIVITIES.**) H.C.M.

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CODE OF ETHICS—See **ETHICS, PROFESSIONAL.**

CO-EDUCATION. Co-education means the provision of instruction for both sexes in the same institution and with the same instructors. The practice today is almost universal in public elementary and secondary education in the United States and is general in higher education, but it has not always been so.

Before the nineteenth century secondary and higher education for women was relatively rare, education beyond elementary needs being the prerogative of men. When girls were given advanced instruction it was in special schools of two main types. One trained servants for household duties; the other was known as the "finishing school" and provided a superficial polish. There was little recognition of the truth that the education of women involves the same problems, responsibilities, and rights as the education of men.

With the opening of the West in America, the common education of boys and girls went forward rapidly and as an accepted principle. It was a logical adjustment to frontier conditions. The people were committed to free public education. Separate schools when pupils were few were economically impossible or inadvisable. When secondary schools appeared they, too, for the same reason, admitted boys and girls on an equal footing. The schools organized on this footing continued to grow and to win public support. In no part of the country except in the East is any distinction now made in elementary and secondary education of boys and girls. Only in a few large cities of the Atlantic seaboard and in some of the larger southern cities are there separate boys' and girls' high schools in the public school system. Catholic secondary schools, however, are generally not co-educational.

Later the movement spread to the colleges. Most of the western state universities which opened after 1850 were co-educational from the first. All of the state universities now thought of as Western are open to women.

The southern states made the concession more slowly. Today national public opinion has definitely affirmed the rights of women to share equally with men the instructional facilities of schools, colleges, and universities.

The trend today is in the direction of extending co-education; some authorities even predict that another fifty years will see co-education become the universal system of public instruction on all levels. There are two important exceptions to this trend. The Catholic Church is outspoken in its objection to co-education and tolerates it in some parochial schools only because of economic considerations. There are, too, nations that object to co-education. In most Latin-American countries, for example, there are separate educational facilities for boys and girls except in primary schools and in institutions of higher learning. (See COLLEGE EDUCATION FOR WOMEN.) J.E.G.

CONTINGENCY, COEFFICIENT OF
—See CORRELATION (STATISTICS).

COEFFICIENT OF CORRELATION
—See CORRELATION (STATISTICS).

COEFFICIENT OF RELIABILITY—
See RELIABILITY.

COEFFICIENT OF VARIATION—See
VARIATION, COEFFICIENT OF.

COLLATERAL READING. Collateral reading refers to additional materials that are coordinate in rank and function with the basic reading requirement. If a basic textbook is used in a subject, then the collateral reading is found in other books dealing with the same subject or topic. The purpose of collateral reading is to secure further information than can be found in one or two sources. Since no two writers give the same emphasis to a topic or present the same viewpoints, the reading of several books gives a broader and more detailed treatment than can be found in one book.

The expression collateral reading implies that this use of additional materials is supplementary to that of the basic textbooks. In modern methods of teaching, however, the tendency is to reduce the pupils' reliance on a single textbook and to use the textbook more as a convenient source of information

to be consulted when necessary and as a means of building a common background for class discussion. The textbook itself is therefore used in the way in which collateral reading was formerly used. Moreover, this changed attitude towards the textbook reduces the need for reliance on a single basic textbook and increases the desirability of using many books as sources of information and as expositions of points of view. The expression collateral reading thus becomes less important because these books are now accepted as part of the basic background and not as a means of supplementing or correcting the point of view of a single official textbook.

The use of collateral reading has been extended further by the increasing popularity of the activity program in elementary schools, with its encouragement of research activities and committee reports even in the lower grades. Thus all pupils, from the youngest pupils in the primary grades to the young men and women in our colleges, are becoming accustomed to using a wider variety of reading materials than was the practice a few years ago. F.A.B.

COLLECTING—See ACQUISITIVENESS.

COLLEGE—See COLLEGE EDUCATION FOR WOMEN; JUNIOR COLLEGE; LIBERAL ARTS COLLEGE; MUNICIPAL COLLEGES AND UNIVERSITIES; STATE COLLEGES AND UNIVERSITIES.

COLLEGE ADMINISTRATION. The *administration* of colleges, with the exception of some denominational colleges, is usually conducted by boards of control. The membership of such boards ranges from five to two hundred and fifty. Administrative control is either public-state controlled; or private non-state controlled. Even the latter may be thought of as partially state controlled, since these institutions are usually chartered under state law, and since many of them receive part of their support from public funds.

Internal administration is under the control of a president, responsible directly to the board of control, and the faculty. The faculty is usually the legislative body in educational matters; the president and board exercise wide powers over larger educational policies. In recent years the faculty has had an increasing voice in the determination of the insti-

tution's policies. There is almost always a dean who is the administrative head of the college. In a university there is a dean, sometimes called "director", for each college or school. There are also deans of men and of women; sometimes, deans of administration. Service units, such as physical plant, library, student records, and financial accounting, are set up as separate administrative units, each with its administrative head who is usually responsible directly to the president. Within each school or college there are academic departments, each of which has a head or chairman, who is usually appointed by the president, although he may be chosen by the faculty members of the departments.

In a university there is usually, in addition to the separate faculty of each college or school, the all-university faculty, frequently called the senate, composed of members from the several faculties according to academic rank or election. In large institutions there is frequently the president's cabinet or administrative council, whose membership is composed of the deans and in some cases other administrative officers. (See also COLLEGE FACULTY; LIBERAL ARTS COLLEGE). R.A.K.

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COLLEGE EDUCATION FOR WOMEN—See LIBERAL ARTS COLLEGE; WOMEN'S COLLEGES.

COLLEGE ENTRANCE EXAMINATION BOARD. President Eliot of Harvard was considered visionary when, in 1877, he made the first suggestion containing the idea of a college entrance examination board. In February, 1896, in an address delivered before the Schoolmasters' Association of New York and Vicinity, he gave an outline of his proposal. In December, 1899, Nicholas Mur-

ray Butler of Columbia presented a detailed plan for such a board, which corresponded closely to what was finally adopted and followed for more than a third of a century.

A plan for a college entrance examination board was submitted in November, 1900, by a committee of which Dr. Butler was chairman, and was adopted at a meeting which comprised representatives of eleven eastern colleges and nine representatives chosen by the Association of Colleges and Preparatory Schools of the Middle States and Maryland. President Seth Low of Columbia University was elected chairman, President Thomas of Bryn Mawr vice-chairman, and Nicholas Murray Butler secretary of the new organization.

Nine hundred and seventy-three candidates presented themselves at the first examinations, which were held in June, 1901, at sixty-seven points in the United States and at two points in Europe. In 1941, 23,620 candidates registered for the examination. Prior to 1940 there were between seventy-five and one hundred candidates examined annually at Brussels, Florence, Venice, Geneva, London, and Paris. In 1940 there were twelve examination centers outside the United States, three being in South America.

The College Entrance Examination Board is an agency set up for the purpose of securing uniformity in the administration of examinations to high school graduates for entrance to institutions of higher education. Its functions include, first, drawing up syllabi for the subjects covered in the examinations, and aims to be sought in the teaching of certain secondary school subjects; and, secondly, providing means by which examination questions are constructed and papers are marked on impartial bases.

The Board now consists of six members chosen at large from secondary schools, eleven members appointed by the various regional associations on and contiguous to the Atlantic Seaboard, and forty-five members representing universities, colleges, and scientific schools. (Of the 1941 membership, only four college and three secondary school members represented the territory west of Pennsylvania.) Besides an executive committee of nine, the Board has seven other standing committees.

In 1926 the Board introduced a new type of test, called the Scholastic Aptitude Test,

COLLEGE ENTRANCE REQUIREMENTS

which consisted of two parts—one measuring familiarity with the words in the English language, and the other mathematical aptitude.

Previous to 1940 there were two examinations a year—the Scholastic Aptitude Test in April, and regular subject-matter examinations in June. Beginning in September, 1940, another subject-matter examination was added, covering college preparatory courses. The Board also has been giving, in eleven subjects or fields, a third type of examination, called Achievement Tests. They are of the objective or restrictive response type. Nine of these tests are offered, of which any one candidate may take only three.

The above procedure was followed until 1942, when the June subject-matter examinations were withdrawn, with the exception of the Mathematics Attainment Test, Part One. The June examinations now consist of the Scholastic Aptitude Test, Achievement Tests, and the Mathematics Attainment Test, Part One.

R.A.K.

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COLLEGE ENTRANCE REQUIREMENTS. The term college entrance requirements, as here considered, refers to the standards which degree-granting institutions stipulate shall be met by applicants for unconditional admission to freshman status and candidacy for a degree. These standards vary among institutions and from year to year in the same institution with, however, certain definite patterns and trends evident.

At the present time, the one entrance requirement common to practically all the colleges of the United States is secondary-school graduation, usually with a minimum of 15 or 16 acceptable units. Even this standard has been temporarily suspended by a number of institutions in an effort to meet the demands of a war-time economy. Other current requirements are set forth in *Table I*, the data of which are based on a study (M. Hunsinger, "The Selection of Persons to Be Trained as Teachers of Commercial Subjects," unpublished doctor's thesis, University of Pittsburgh, 1942), of 371 representative colleges of the United States. The institutions studied represent 46 states; include 81 state universities and colleges, 83 state teachers colleges, and 207 non-state universities and colleges; and range from very large universities to very small private colleges. The information used was taken from official catalogues for the

TABLE I
ENTRANCE REQUIREMENTS SPECIFIED BY 371 REPRESENTATIVE COLLEGES
IN THE UNITED STATES

Entrance Requirement	State Universities and Colleges (81)		State Teachers Colleges (83)		Non-state Universities and Colleges (207)		All Combined (371)	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Specific secondary-school units ...	64	79.0	46	55.4	173	83.6	283	76.3
Approved moral character	29	35.7	29	34.9	98	47.3	156	42.0
Acceptable scholastic standing or rank	22	27.2	22	26.5	95	45.9	139	37.5
Good health	24	29.6	30	36.1	56	27.1	110	29.6
Recommendation by secondary-school official	13	16.0	18	21.6	57	27.5	88	23.7
Approved personality	4	4.9	15	18.1	38	18.4	57	15.4
Satisfactory score on aptitude test	10	12.3	13	15.7	32	15.5	55	14.8
Recommendation by other than school official	2	2.4	4	4.8	35	16.9	41	11.1
Minimum age of fifteen or sixteen years	18	22.2	11	13.3	11	5.3	40	10.8
Interest and promise	1	1.2	11	13.3	20	9.7	32	8.6
Satisfactory scores on achievement tests	6	7.4	10	12.0	10	4.8	26	7.0
Acceptable personal interview	0	0.0	7	8.4	7	3.4	14	3.8

school year, 1940-41, and was verified by staff members of the colleges represented. Approximately three-fourths of the institutions represented demand that the secondary-school transcript show credit in certain specific subjects. Other requirements, none of which is common to a majority of the institutions studied, may be ranked in order of frequency as: (1) Evidence of approved moral character; (2) satisfactory scholastic average or rank in secondary-school graduating class; (3) good health, as evidenced by physical examination or physician's certificate; (4) recommendation by principal or other secondary-school official; (5) evidence of approved personality; (6) satisfactory score on a psychological examination or college aptitude test; (7) letters of recommendation other than those given by secondary-school officials; (8) minimum age requirement of fifteen or sixteen years; (9) evidence of scholastic or professional interest and promise; (10) satis-

factory scores on achievement examinations; and (11) an acceptable personal interview.

Curriculum patterns. Among the specific secondary-school units which colleges state shall be presented for admission, English is the most common; but mathematics, social science, science, and foreign language occur frequently. The prescribed pattern may allow practically no electives; it may allow electives for all except three or four units; or it may designate that two-unit or three-unit sequences be chosen from the various academic fields and that the number of free electives be limited. The data of *Table II* depict the distribution of secondary-school units according to subject-matter fields and summarize the miscellaneous restrictions imposed on acceptable units as prescribed by 200 of the institutions surveyed in the above-mentioned study. Approximately one fifth of these colleges make no specification concerning curriculum patterns presented.

TABLE II

GENERAL DISTRIBUTION OF SECONDARY-SCHOOL UNITS SPECIFIED FOR ADMISSION
TO 200 REPRESENTATIVE COLLEGES

Subject-Matter Field in Which Units Are Specified	State Universities and Colleges (45)		State Teachers Colleges (50)		Non-state Universities and Colleges (105)		All Combined (200)	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
English	40	88.9	30	60.0	88	83.8	158	79.0
Mathematics	28	62.2	21	42.0	63	60.0	112	56.0
Social science	30	66.7	22	44.0	55	52.4	107	53.5
Science	14	31.1	16	32.0	42	40.0	72	36.0
Foreign language	7	15.6	2	4.0	30	28.6	39	19.5
Miscellaneous Specifications								
Definite pattern of major and minor sequences	8	17.8	6	12.0	6	5.7	20	10.0
Maximum number of units in non- academic courses acceptable ..	21	46.7	6	12.0	32	30.5	59	29.5
Additional restrictions on accept- able units	6	13.3	5	10.0	23	21.9	34	17.0
No definite curriculum pattern designated	5	11.1	20	40.0	16	15.2	41	20.5

The number of units specified in the subject-matter fields also varies. Among the 200 colleges reporting entrance requirements, the following specifications are made:

English: three units by 66 per cent; four units by 12 per cent

Mathematics: two units by 32 per cent; one unit by 17 per cent

Social science: one unit by 33 per cent; two

units by 15 per cent

Science: one unit by 32.5 per cent; two units by 2.5 per cent

Foreign language: two units by 14.5 per cent; one, three, four, and five units each by 1.0 per cent

Two typical patterns of major and minor sequences designated by some colleges instead of minimum numbers of units in def-

COLLEGE ENTRANCE REQUIREMENTS

inite subject-matter fields for distribution of secondary-school courses are: (1) Three units in English and other units so selected as to present one major sequence of 3 units and two minor sequences of 2 units each from foreign language, mathematics, laboratory science, and social studies. (2) Three units in English, one unit in mathematics, one unit in social science, and other units so selected as to present two major sequences of 3 units each and two minor sequences of 2 units each from academic subjects.

The most common restriction on curriculum patterns accepted for admission to college in addition to those listed above is that a limited number of "non-academic" or "vocational" courses be presented. The so-called non-academic courses commonly include agriculture and home economics; manual arts; speech, dramatics, and journalism; music and art; and business subjects. Frequently, not more than three, four, or five of such units are accepted.

Trends. Evidence that entrance requirements are not static but in an almost continuous process of revision in the colleges of the United States is manifested by the constant changes in statements of admission policies found in college catalogues. That the general trend at present is toward more liberalism in curricular specifications and more consideration of each applicant's personal qualifications is revealed by the data in *Table III*

TABLE III
CHANGES IN ENTRANCE REQUIREMENTS IN
50 REPRESENTATIVE COLLEGES BETWEEN
1931 AND 1939

Change	No. of Colleges	Per cent Specifying
Less specification in curriculum patterns	25	50
Greater specification in curriculum patterns	1	2
No change in curriculum patterns specified	24	48
Increased emphasis on qualifications other than specified curriculum patterns	21	42

showing types of changes in entrance requirements made by 50 representative colleges between 1931 and 1939. (Comparative data were obtained from admission requirements reported in the Second Edition [1932] and the Fourth Edition [1940] of *American Uni-*

versities and Colleges, a Handbook of Higher Education prepared by the American Council on Education. The 50 colleges included were selected somewhat at random, but approximately ten pages apart, from the earlier edition of the directory.)

Although the number of colleges which prescribe no specific curricular requirements is increasing, many institutions continue to define entrance standards in terms of minimum numbers of secondary-school units. These schools, however, are prescribing fewer units and less definitely than formerly. The most common changes in curriculum specifications for admission in the 50 colleges surveyed were found to be: (1) reduction in the number of units of mathematics required by 24 per cent of the institutions; (2) reduction in the number of units of foreign language required by 20 per cent of the institutions; (3) change from a specific history requirement to social science requirement by 16 per cent of the institutions; and (4) change from definite course designations to specification of major and minor sequences by 8 per cent of the institutions.

At present some colleges, desiring to place emphasis on the high schools from which graduates are accepted or on the personal qualifications of the applicants rather than upon uniformity of preparation, make the statement of their requirements indefinite in order to permit admission of promising students regardless of their secondary-school programs. Illustrative of this tendency is the statement occurring ever more frequently in college catalogues that acceptance is based upon evidence of ability and character rather than on any rigid pattern of units and that the student's record will be evaluated if he presents a transcript from an accredited high school, is well recommended, and shows satisfactory intellectual aptitude. Thus liberalization of curriculum patterns has brought attempts by colleges to emphasize attainment rather than credits and to substitute other admission standards for minimum numbers of units. As shown in *Table IV*, greater consideration is at present being given to the applicant's scholastic standing or rank in graduating class; the recommendation of his secondary school principal; his evidence of approved moral character, health, and personality; and the acceptability of his rating on

COLLEGE FACULTY

a personal interview or a psychological examination.

TABLE IV
ENTRANCE REQUIREMENTS ADDED BY 50
REPRESENTATIVE COLLEGES BETWEEN
1931 AND 1939

Requirement	No. of Colleges	Per cent Specifying
Acceptable scholastic standing or rank	9	18
Recommendation by secondary-school official	8	16
Approved moral character ...	5	10
Good health	3	6
Acceptable personal interview	3	6
Satisfactory score on psychological examination	2	4
Approved personality	2	4

The trend in college entrance requirements over a longer period of time is illustrated in modifications in policy of a fairly conservative eastern college. In 1910, the specifications for admission were: English, 3 units; electives, 3 units. In 1916, they changed to: English, 3 units; mathematics, 2 units; foreign language, 4 units; science, 1 unit; and electives, 5 units. In 1938, the foreign language requirement was reduced to 2 units, and it was stipulated that the electives should include 1 unit of social science and not more than 4 units from non-academic subjects. Now, in 1943, the admission requirements are: graduation from an approved secondary school, with 4 units of English and 12 additional units, of which not more than 5 are non-academic in character; and approval by the Committee on Admissions of the applicant's preparation and ability for his selected college work and of his personal qualities, such as social responsibility, cooperativeness, and loyalty.

Impetus for the gradual liberalization of college entrance requirements seems to have come largely from the high schools, whose officials believed that needless unit specifications for admission to college were preventing the broadening of curricula and enrichment of courses desirable in adapting the secondary-school work to the individual student and to the community. Even when high schools established curricula that did not prepare for college, a large percentage of the pupils not expecting to attend college chose the college-preparatory programs. So, not willing to be

dropped from the accredited list, many high schools continued emphasis on foreign language and mathematics while their principals criticized college policy and brought such pressure as they could to effect changes.

General factors influencing the trend of changes in college entrance requirements are: increased cooperation and articulation of programs between high schools and colleges in recent years; wider ranges in the intellectual abilities of students attending high schools and colleges; a tendency toward student-centered teaching and an increased emphasis on developing citizens rather than scholars in both high school and college; increased reliance of school officials on aptitude tests, personal interviews, and cumulative records; the growth of junior colleges; the failure of the old plans of admission to assure college students of high ability and thorough preparation; the high percentages of students who attain honors when admitted under special plans; and the accumulating evidence of research against the theory that specific courses pursued in high school affect the student's probability of success in college. (See also EIGHT YEAR STUDY; LIBERAL ARTS COLLEGE.) M.H.

COLLEGE FACULTY. The members of the teaching staff of a college or university are usually referred to as its *faculty*; some institutions, however, restrict the term to refer only to those members of the staff who hold professorial rank, and use the expression *instructional staff* to include all of the teachers, whether they be of professorial or lesser rank.

Though the actions of the faculty are subject to review by the college administration and the board of trustees, the college faculty has the opportunity of exerting much more influence in shaping the educational policies of the institution than do teachers in the elementary or secondary schools. As a rule the faculty votes to confer degrees on students and passes judgment on proposed changes in the curriculum. The faculty is thus often responsible for determining standards of scholarship, for planning the distribution of credits among the various courses in the curriculum, for defining the nature of the college course, and for deciding many of the other educational problems of college work. The faculty

COLLEGE FACULTY

is often a reviewing body of departmental action. When it is too large for effective functioning as a legislative body, many of its functions may be delegated to a *Faculty Council* or executive committee, consisting either of the senior members of the faculty or of the elected representatives of the faculty. The authority and the prestige of the college faculty vary considerably among the different colleges, usually being greater at the larger universities than at small denominational colleges. At some institutions the members of the faculty elect the chairman or executive officer of their respective departments and have a voice in selecting candidates for appointment and for promotion to higher rank; at other institutions the college faculty has no jurisdiction in such matters.

Unlike the members of instructional staffs of school systems who are divided into only two ranks—teachers and supervisors—the members of the college faculty are of many different ranks. Ordinarily the lowest rank of a regular college teacher who carries a full-time teaching program is *instructor*. Such ranks as *fellow*, *tutor*, and *assistant* are interpreted variously at different colleges but usually apply to young teachers, often graduate students, who do not carry a full teaching program and generally enjoy few if any of the legislative privileges accorded other members of the instructional staff. Above the rank of instructor are the *assistant professors*, *associate professors*, and *professors*. Denominational colleges tend to have many more full professors than either assistant professors or instructors, but in state and municipal institutions the proportion of full professors is very little larger than that of assistant professors or instructors. Of all full-time college teachers, more than one-third hold the rank of instructor and about half are either associate professors or full professors.

At least half of all faculty members have a Ph.D. degree or its equivalent; the percentage may be as high as 85 per cent for a single college. A relatively small percentage of college teachers have only a bachelor's degree. Accrediting associations in general have been an influence in increasing the proportion of faculty members who hold advanced degrees. Though the increase in the number of college teachers who hold the doctorate undoubtedly has improved the scholarship of

college faculties, objection has been raised in many quarters to the influence which the possession of the Ph.D. has on appointment and promotion. Some critics have pointed to the low correlation between the amount and character of graduate work taken by college teachers and their effectiveness as teachers. Others have criticized the universities for ignoring the fact that many of their graduate students are preparing for college teaching; these critics see no reason why universities should not prepare their graduate students to deal with the educational problems which confront college teachers. There is little evidence, however, that these objections have reduced the prestige of the Ph.D. as an accepted part of the college professor's background.

Since most colleges are autonomous, there is considerable variation among colleges with respect to such matters as salary, conditions of appointment, requirements for promotion, tenure, and provisions for leaves of absence and retirement. College teachers are, on the average, better paid than are elementary and secondary-school teachers, although both the average and the maximum income of college professors are lower than the average and the maximum income of members of such other professions as law, medicine, and engineering. The salaries of college teachers normally reflect changes in the economic status of the times, although college teachers' salaries usually lag behind those of the general population, both in rising during periods of prosperity and in falling during periods of depression. Of the requirements for appointment and promotion, the two criteria used most frequently are scholarship, as reflected in the record of graduate study and publications, and teaching ability. Permanent tenure is not so commonly accepted a feature of college teaching as of elementary and secondary school teaching. Many institutions employ all teachers on an annual contract, and even full professors sometimes have contracts for only two or three years at a time. The American Association of University Professors has been quick to investigate and to publicize instances where the dismissal of college teachers involved violation of the principles of academic freedom and has been consistent in its efforts at improving the conditions of tenure of college teaching. An increasing number of colleges have made provision for

granting sabbatical leaves of absence and for establishing a pension or retirement fund. (See LIBERAL ARTS COLLEGE.) R.A.K.

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COLLEGES, LAND GRANT — See LAND GRANT COLLEGES.

COLOMBIA, EDUCATION IN. By 1930, Colombia had a population of some 8,500,000 — white, *mestizo*, Indian, and Negro — scattered over 450,000 square miles of territory which is covered with lofty mountains and tropical valleys and plains. Of its three classes of people, the upper were cultured; the middle, weak and slightly educated; and the lower, ignorant and helpless. For the few rich, education followed nineteenth century French patterns; for the immense majority of the poor, it tried to keep alive the old, Colonial patterns, which stressed moral and spiritual values almost to the exclusion of others. Thus, in a country known for its simple pastoral and agricultural economy, ten per cent of its people reached the levels of advanced education in colleges and universities that offered courses in art and literature, in logic and metaphysics, in higher mathematics and jurisprudence, but not in applied sciences and experimental research; while the rest were expected to attend public schools that taught urbanity, meekness, poetics, and sacred history, but not sanitation, home economics, agriculture, and the like. Out of 1,500,000 children of school age, only some 400,000 "went to school" in dark, unsanitary old houses, where education was nothing but drudgery and a menace. A radical reform was necessary, and it came mainly because of the efforts of a great educator, Dr. Agustin Nieto Caballero, and a genuine and inspired

sociologist, Dr. Luis Lopez de Mesa, who, together with Señor Gustavo Santos and Dr. Carlos Gracia-Prada, reorganized the Ministry of Education of Colombia, and proceeded to reorganize its whole educational system in accordance with certain ideals and principles which were to be put in operation later on by such men as Jorge Zalamea and German Arciniegas.

The first concern of the reformers and their followers was to study, carefully and honestly, all vital conditions in the various regions of Colombia, high and low, cold and warm, and then to establish the ways and means to protect and strengthen the physical, intellectual, and social welfare of Colombian children of both sexes, regardless of their race, origin, and economic position, and without neglecting their moral and spiritual advancement. *Education for all* was the battle cry of the reformers, education for the better life, education to lead boys and girls into becoming healthy, joyous, and useful citizens of Colombia and of the world.

The system created by the reform calls for the establishment of the following educational cycles and institutions:

(1) Elementary, two years — Kindergartens;

(2) Primary, five years — public schools;

(3) Complementary, two years — Vocational schools in the cities and agricultural schools in the rural districts;

(4) Secondary, six years — Schools of humanities (*colegios de bachillerato*), for those who intend to attend the universities, and industrial and commercial schools for the others; and

(5) Professional, from four to six years — Universities and Normal Schools.

The reform followed in general the leadership of such world-known educators as Horace Mann, Dewey, Montessori, (*qq.v.*) and others; but it aimed, to make their ideas and methods fit into the needs of the Colombian people and the land in which they live. Thus, to promote the social welfare of the children, there have been established clubs, committees, etc.; to develop their æsthetic sense, there have been organized orchestras, museums, art galleries, etc.; to promote their physical welfare, there have been built gymnasias, playgrounds, and athletic plants; but there have also been created such institutions

as the *colonias escolares*, some located on the high lands and others on the low lands. These locations allow for the transfer of children from the latter to the former, and vice versa, thus giving the children the chance to experience a year's change of climate, so necessary in tropical countries.

Being well aware of the temperament and the traditions of the Colombian people, those in charge of this educational reform decided (a) to establish co-education only in the elementary and advanced stages, that is, in the kindergartens, public schools, and universities, but not in the secondary schools; and (b) to start educational processes from the concrete and the local, and continue them toward the abstract and the universal: the *centros de interes* (projects) take children from their school and home environment to the understanding of world affairs, during their first ten years of schooling, but take them back to a thorough knowledge of Colombia in all its many aspects—economic, social, political, and cultural—during the last two years of their secondary education.

All the *programas de estudio* (curricula) were changed for the public and secondary schools of the country, and in order to meet their demands, many and new institutions were created for the preparation of teachers, such as the *cursos de informacion* (intensive courses), the *escuelas normales de rurales* (normal schools for rural teachers), the *normales nacionales* (normal schools), and the *Facultad de Educación* (national college of education). By 1935 there were in Colombia some eleven private and public "universities," of which the National was the most important. In 1935 the series of independent professional schools in Bogota, which comprised the National University, was reorganized by national law into a centralized university with a unity of purpose and a new spirit of cooperative and advanced research and instruction in many respects similar to that which one can find in the great universities of the United States.

Industrial and commercial schools are being established in Colombia. Dr. Carlos Garcia-Prada organized the *Colegio de Santander*, a technological school in which the ideal of cooperative endeavor among students and teachers is being emphasized, with the setting up of shops of all kinds—wood and

iron shops, shoemaking, etc.—thus giving a chance to the students to earn a living while learning, and the public a chance to buy goods at very low prices.

The educational reform in Colombia—in spite of the many difficulties which it faces because of lack of money—continues today with true enthusiasm. Its methods are those recommended by the great educators of the world. Its ideals are those which correspond to the universal need of bringing upon the earth a life of peace, liberty, justice, health, truth, and beauty, through the cooperative efforts of all. C.G.P.

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COLOR-BLINDNESS—See VISION.

COLOR OF WALLS AND CEILINGS
—See LIGHTING, SCHOOL.

COLUMBIA SCHOOL OF THE AIR
—See RADIO IN EDUCATION.

COMENIUS, JON AMOS (1592-1670)
Comenius' place in the history of education is of commanding importance. Dr. Nicholas Murray Butler said of him on the occasion of his 300th anniversary: "He introduces and dominates the whole modern movement in the field of elementary and secondary education. His relation to our present teaching is similar to that held by Copernicus and Newton toward modern science, and Bacon and Descartes toward modern philosophy." As the "prophet of modern education" he helped lay the foundation for our modern ideals of universal, democratic education; as a practical schoolman he first conceived of a detailed,

comprehensive ladder system of schools with its Mother-School in every home, the Vernacular-School in every hamlet and village, the Latin-School in every city, and the University in every province; as a writer of textbooks he is the father of the illustrated school books (the *Orbis Pictus*); as a teacher of teachers he evolved or reaffirmed methods of instruction which have been accepted and embodied in the thinking of the world of education. Yet Comenius' work as an educator and his message for our times cannot well be understood unless it is viewed in the light of his larger purpose—the attainment of world peace based on an enlightened brotherhood of men and nations.

Comenius was born in Nivnitz, Moravia, in 1592. As a member and later a spiritual leader of the Moravians he suffered greatly in the religious persecutions that ravaged his native land during the Thirty Years' War. His wife and children murdered, his home twice plundered, and his books and manuscripts twice burned, he spent much of his long life as an exile in foreign lands. After being banished from his native land as a young minister and schoolmaster, he worked successively in Lissa, Poland, as the master of a school; in Sweden, as a reorganizer of schools; in England, in a futile attempt to interest the English in establishing an international institute of research (the *Pansophic College*); in Sweden again, as a prolific writer of textbooks for the Swedish schools; in Saros-Patek, Hungary, in charge of a school where he worked out his famous textbooks for teaching language; back to Lissa for a while, until he was again made homeless, his books and manuscripts burned, and driven anew into exile. He finally found refuge and a patron in Amsterdam where he lived until his death at the age of seventy-nine.

Comenius' principles of education are formulated in his *The Great Didactic*, in which he attempts to apply the fundamental ideas of Francis Bacon and the sense realists to the school. In applying the principle that education should follow nature, Comenius worked out fundamental principles of educational method that were later embodied in the theories of education developed in the eighteenth, nineteenth, and even twentieth centuries. Education should proceed in carefully graded steps from the easy to the diffi-

cult, the known to the unknown, the near to the remote; education is guidance and discovery, not storing the memory by rote; learning must be on the basis of understanding and interest, both to be achieved through sense perception: discipline should be mild and gentle. His principles, commonplace as they may sound to the modern educator, nevertheless were a milestone in the progress of educational thought, and saw deeply into the nature of the educational process. Comenius advocated an essentially universal and democratic organization of schools very much unlike the pattern of his time and later European development, but, in its fundamentals, akin to the present-day American ladder system. It was, however, as a textbook writer that Comenius achieved the greatest fame during his lifetime and for many years after. His educational theories were forgotten for two centuries until *The Great Didactic* was rediscovered in 1841 and republished, but his textbooks achieved immediate fame and were translated widely and used all over the world as late as 150 years after his death. (An American edition of the *Orbis Pictus* was published in New York City as late as 1810.) In these books, mostly textbooks for the teaching of Latin, Comenius shifted the emphasis in instruction from words to things, and taught language by means of pictures. The subject matter of the books was not the world of classical antiquity but of everyday, useful information and scientific knowledge. In thus teaching language as a means of expressing and interpreting the realities of contemporary moment, Comenius broke completely with the sterile traditions of *Ciceronianism* that afflicted the schools of his time and for hundreds of years after his time.

Yet it is one of the ironies of history that a man who devoted his whole life to the cause of peace and universal brotherhood should be remembered only for his contributions to educational theory and the textbooks which he prepared. It is also characteristic of the politician's state of mind, that, when he sought Sweden as a haven where he could work for the great cause which he had espoused, Comenius was advised by Oxenstierna to devote himself to the writing of text-books. "My advice," said Oxenstierna, "is that you first do something for the schools, and bring the study of the Latin tongue to greater facil-

ity; thus you will prepare for those greater matters" the program of world peace. This attitude was to be repeated three centuries later when the League of Nations turned a deaf ear to the plea that education should also be employed under its aegis as an instrument for the promotion of a new world order.

As a spiritual leader of the persecuted and exiled Moravians, Comenius did all in his power to restore them to the homeland from which they had been ruthlessly driven. If his first thoughts were directed to the education of his people, it was, as he wrote, "with no other intent but that, should God in His mercy toward us restore us to our native land, supports might be in readiness, whereby the harm wrought to our schools and our youth might be the more rapidly repaired." But he was more than a nationalist; he was a humanitarian who wished to see educational opportunities provided for "all alike, gentle and simple, rich and poor, boys and girls, in great towns and small, down to the country villages. And for this reason. Everyone who is born a human being is born with this intent—that he should be a human being, that is a reasonable creature ruling over the other creatures and bearing the likeness of his Maker." Nearly two centuries were to pass before this ideal was to be incorporated in the educational policies of nations.

Comenius was not content, however, with the provision of educational opportunities for all according to their abilities. Universal education must be informed with knowledge garnered from all the world, if universal humane education was to be disseminated. Education must become a way of light "that the young might be rescued from the mazes of the world and better instructed about all things from their very elements" and that "men's minds should be gradually raised from darkness to light and withdrawn from the vague and casual opinions to the one straightforward way of everlasting truth." He was convinced that "there is no more certain way under the sun for raising sunken humanity than the proper education of the young," and that education was to be the way to peace and to universal brotherhood.

Comenius has been described as a millenarian; devoutly religious, he could not but accept the promise of a better world. Faced with the conditions of his day, however, he

felt it his duty to contribute, so far as his powers would permit, to hastening the realization of that promise in his time. It was in this connection that he sought to turn to practical use the new knowledge which was being accumulated. With his contemporaries he shared the hope that the newly discovered sciences would, as Bacon had already expressed it, be used "to endow human life with new discoveries and resources," "to extend more widely the powers and greatness of man's estate, to secure the sovereignty of man over nature," "for the finding out the true nature of all things, whereby God might have the more glory in the workmanship of them, and men the more fruit of them."

While Comenius welcomed the new learning, he was disturbed by the threatened danger of specialization in which men would become immersed in their own immediate interests and neglect the practical contribution which could only be made by the synthesis of all the knowledge then in process of being accumulated. He anticipated by three centuries the current movement for the unification and coordination of the sciences as a tool for social progress and human welfare. This coordination of the knowledge of the world for the advancement of human welfare was to be the responsibility of an international center, a Pansophic College, a Temple of Universal Knowledge, "a structure of truth, human and divine" in which learned men would "make it the object of their combined labors to establish thoroughly the foundations of the sciences, to spread the light of wisdom throughout the human race with greater success than has heretofore been attained and to benefit mankind by new and useful inventions. For unless we desire to remain ever in the same position, or even to go back, we must take care that our successful beginnings lead on to further advances. For this no individual, no single generation sufficeth, and it is therefore essential that the work should be carried on by many persons, working in concert and using as a starting-point the researches of their predecessors. This Universal College would bear the same relation to other schools that the belly bears to other members of the body, that of a living laboratory supplying sap, vitality and strength to all."

It was not, however, the accumulation of

knowledge for its own sake in which Comenius was interested, but its unification, coordination and advancement for human welfare and universal peace. In expressing his hopes Comenius speaks in words of universal applicability, as vital for our own time as for the seventeenth century: "There is needed in this century an immediate remedy for the frenzy which has seized many men and is driving them in their madness to their mutual destruction. For we witness throughout the world disastrous and destructive flames of discord and wars devastating kingdoms and peoples with such persistence that all men seem to have conspired for their mutual ruin which will end only with the destruction of themselves and the universe. Nothing is, therefore, more necessary for the stability of the world, if it is not to perish completely, than some universal rededication of minds. Universal harmony and peace must be secured for the whole human race. By peace and harmony, however, I mean not that external peace between rulers and peoples among themselves, but an eternal peace of minds inspired by a system of ideas and feelings. If this could be attained, the human race has a possession of great promise."

This system of ideas and feelings could be attained through universal knowledge, which, as the foundation and coordinator of all things, would secure order and produce good rulers of states. But it would do more, if the masses would be permitted to learn and understand that the public and private welfare of all depend upon the acceptance of responsibility by each for his own proper function in life. With nations scattered over the whole world and divided by differences of languages much could be gained not only for each nation but for all peoples of the earth, if they had a common basis for mutual understanding which they could share through a common language. Such a common basis could be achieved and disseminated because of the expansion of intercourse between all parts of the world through navigation, printing and the promises of the sciences. Further, the dissemination of universal knowledge was made possible by the discovery of a method whereby all men could learn all things thoroughly (*omnes omnia omnino*). The great task for the Pansophic College would be to coordinate and unify all

knowledge and adapt it for convenient use by this method.

Comenius was not content, however, with the coordination and unification of the knowledge of the past and of his day. The Pansophic College would be concerned with emphasizing the coherence of all things, with stressing the possibilities of constant progress and with insisting on the perpetual interdependence and unification of all knowledge. Directly attacking the current belief that intellectual achievement had already reached its limits, he urged that the duty of the Pansophic College would also be to reveal the unknown areas which still remained to be discovered. Knowledge to be effective must, he urged, be universal and without any serious gaps; it must be true and sifted from the false and useless, and it must be so simplified and free from obscurities and ambiguities that it would of itself exercise an influence on the mind. The light of true knowledge would serve to promote universal knowledge and cultural unity throughout the world.

More than three centuries separate the age of Comenius from that in which we live, Comenius may have expressed his ideas in a mold which differs from ours; his faith may have been rooted in sanctions which a world, become skeptical and cynical, has questioned. We may know more of the hidden causes of things than even the optimistic age of Comenius considered possible. And yet we may well ask ourselves whether, with all the apparatus of knowledge and learning and with all the equipment of modern methods of investigation, we have advanced much further toward the realization of the hopes which Comenius entertained for an understanding world of peace and universal brotherhood. The world of the twentieth century, embroiled in constant conflicts matching in devastation and inhumanity anything even the seventeenth century with its Thirty Years War had to offer, is once more setting out on the same quest which makes Comenius as real for our day as he was for his and gives him his rightful place among those who have labored for an internationally ordered world.

I.L.K.

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COMMERCIAL ARITHMETIC — See BUSINESS ARITHMETIC.

COMMERCIAL EDUCATION — See BUSINESS EDUCATION.

COMMERCIAL GEOGRAPHY — See GEOGRAPHY, TEACHING OF.

COMMISSION ON HUMAN RELATIONS (Progressive Education Association)—See HUMAN RELATIONS, COMMISSION

COMMISSION ON REORGANIZATION OF SECONDARY EDUCATION (National Education Association) — See SECONDARY EDUCATION, COMMISSION ON REORGANIZATION OF.

COMMISSION ON SECONDARY SCHOOL CURRICULUM, (Progressive Education Association)—See SECONDARY SCHOOL CURRICULUM, COMMISSION ON.

COMMISSION ON TEACHER EDUCATION—See TEACHER EDUCATION, COMMISSION ON.

COMMISSION ON THE SOCIAL STUDIES IN THE SCHOOLS—See SOCIAL STUDIES IN THE SCHOOLS, COMMISSION ON.

COMMISSIONER OF EDUCATION—See UNITED STATES COMMISSIONER OF EDUCATION.

COMMITTEE OF TEN (National Education Association). The Committee of Ten on Secondary School Studies was appointed in July, 1892 by the National Education Association on the recommendation of the National Council of Education to consider the question of establishing recognized national standards for secondary education in the United States. The committee met under the chairmanship of President Charles W. Eliot of Harvard University. Among its members were William T. Harris, United States Commissioner of Education, and James B. Angell, President of the University of Michigan.

The purpose of the Committee was to define the educational function of the public high school in the United States, and to set

up uniform standards which would govern both branches of the existing high school curriculum: preparation for college entrance, and preparation for practical life in commercial and industrial endeavors. There was great need for such a clear enunciation of secondary school purposes and standards, since the curriculum of the American high school had grown largely by accretion, and included a multiplicity of subjects poorly organized with respect to time, scope, and sequence. The general relation between the high school and college had to be defined, and an orderly pattern together with an acceptable standard for secondary education needed to be developed.

To accomplish this, the committee organized conferences on each of the existing areas of the secondary school curriculum. The following subjects were included: Latin; Greek; English; Other Modern Languages; Mathematics; Physics; Astronomy and Chemistry; Natural History, Biology, Botany, Zoology, and Physiology; History, Civil Government, and Political Economy; Physical Geography, Geology, and Meteorology. Each conference dealt with questions of scope and sequence of the subject; time allotment in number of hours per week, number of weeks per year, and number of years; uniform requirements for college entrance; methods of teaching and of examination; differentiation between pupils preparing for college and those preparing for practical life. The conferences met separately and submitted their final reports to the Committee of Ten, which then proceeded to deal with the overall picture of secondary education.

In 1893 the Committee published its report on secondary education, recommending a seemingly comprehensive and adaptable curriculum as the basis for all high school instruction. It prepared a series of model programs of study based on the list of subjects considered appropriate by the conferences. It defined the scope and sequence of courses within each subject, and the time allotment which should be accorded to each. It urged that the selection of courses remain the option of the individual high school student, so that there be an individual secondary school curriculum best suited to the individual needs of each student. It recommended that courses be rated as equivalent on the

COMMON SCHOOL MOVEMENT

basis of equal scope and time allotment.

The committee proposed that the secondary school period begin two years earlier, and that a six-year elementary school and six-year secondary school plan be adopted instead of the existing 8-4 plan. (See EDUCATIONAL LADDER.) It reaffirmed that the main function of the high school was to prepare the youth of the nation for the duties of practical life, since only a small percentage of the graduates went on to college or higher studies. In the matter of college entrance requirements, the Committee proposed that any groups of studies taken from the secondary school program be acceptable for college admission provided that there be four years of courses ranging from 16 to 20 periods each per week. The Committee also called attention to the need for better instruction in the high schools, and pointed out that this could be achieved only by providing a higher level of trained professional personnel. It therefore recommended that teachers be better trained for high school work.

The Report of the Committee of Ten had considerable influence on the development of secondary education in America, particularly during the succeeding half-century. In many instances it rescued the high school curriculum from a condition of chaotic disorganization born of the multiple accumulation of specialized subjects without regard to their overall integration. The Committee established a comprehensive and uniform standard for all secondary schools to meet, based on an articulated program of high school and college studies, and utilizing a quantitative measure of equivalent courses arrived at on a time allotment basis. Even though its suggestion that the six-year elementary and six-year secondary school plan be substituted for the older eight-year elementary and four-year secondary school plan did not gain widespread adoption, the Committee's recommendation of a reorganization of the structure of the American educational system helped prepare the way for the adoption of the 6-3-3 plan, which divided the secondary school into upper and lower units and made possible the development of the junior high school (*q.v.*). The Committee also established the policy of pupil selection of individualized programs of study, and the acceptance of all such programs by college boards as a basis for en-

trance. It thus defined the scope and function of the American high school, and laid the basis for a standardized and continuous system of American education beginning at the elementary level, and progressing through the secondary school and college.

The Committee of Ten, however, also had certain negative effects. The Committee based its standards on specified subjects, the scope and sequence of which were narrowly defined, with equivalent values established within fixed limits. As American life expanded and technological industrialism replaced an older agrarian economy, new subjects clamored for admission to the curriculum, and the equivalence, scope, and sequence of secondary school subjects had to be defined anew. The limited range of subjects recommended by the Committee of Ten became the established nucleus of a fixed and traditional secondary school curriculum which fought the intrusion of any new subject matter into the high schools. The battle of the curriculum thus became the major problem of succeeding generations that sought to adapt the high school to the changing pattern of life. How to redefine the scope, purposes, and standards of secondary education in the United States has become one of the crucial issues in curriculum development facing American education today. (See SECONDARY EDUCATION.)

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COMMON SCHOOL MOVEMENT. The term *common school* is sometimes used to designate lower schools as opposed to higher schools, but it is more properly applied to such schools as are supported by general

taxation and open on a common basis to all. In America particularly it is practically synonymous with the term *public school*. As sometimes used it means only elementary or rural schools, but strictly speaking it should include all of the schools provided for by public taxation, even including the state colleges and universities. Ordinarily the term is applied to the elementary schools of a city, as distinguished from the high schools, but the decision in the the famous Kalamazoo Case of 1872 interpreted the term as covering all public schools, colleges, and universities supported by public taxation and open on a common basis to all the children of all the people.

The common school movement, then, is the movement to set up a public school system based on the principle of universal and common education for all at public expense. State-controlled and state-supported public school education today is usually universal, compulsory to a stated age level, generally sixteen, and free, although seldom common in the fullest sense of the world. The French liberalists believed that education should be universal. Roland said, "Education cannot be too widely diffused, to the end that there may be no class of citizens who may not be brought to participate in its benefits." Most of them believed that instruction should be free even for professional training and for adults. Condorcet recommended that education be absolutely free throughout. The French liberalists believed also that schooling should be compulsory and attendance obligatory. Prussia very early succeeded in getting all her children to attend schools regularly, such attendance becoming a national habit in Germany a half-century before the United States achieved a like result. Toward the middle of the 19th century, the United States, largely as a result of the opinions of our leading statesmen, the extension of suffrage, the support of associations of workmen, and the efforts of such educational reformers as Horace Mann and Henry Barnard (*qq.v.*), established free and universal education on the elementary level. This free and universal type of education was later extended upward through the secondary and higher levels, so that today we have a complete system of public education, free and open to all. Yet, although all the states have

compulsory education laws, we give each student the option of attending private schools (supervised in varying degrees by state and local education authorities) instead of the free public schools.

Although the United States has not yet actually provided equal and common educational opportunities for all, the principle of a common school system organized after the ladder pattern has been accepted as the American ideal (See EDUCATIONAL LADDER.) We believe in equal opportunities for all the children of all the people. We are committed to the principle of an education for all in common, as far as abilities and capacities permit. This is quite different from the dual system prevalent in some European countries. In Germany, France, England, and other European countries, there has been developed a dual type of education with folk schools on the one hand and secondary and higher schools on the other, schools for the "masses" and schools for the "classes", with a wide social and economic gulf between the parents who send their children to the free elementary schools and those who pay fees for their children in secondary and higher schools. The European tradition has provided for a type of public elementary school designed to serve the humble needs of a stable working class, with secondary schools and universities for the development of leaders from the more favored classes. In the United States, although at first we followed the European tradition, we have gradually evolved a common ladder type of education favoring the rise of individuals even from the humblest circumstances, minimizing all social and economic distinctions. Thus the educational system of the United States is at least more common than those of most other countries.

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COMMONWEALTH FUND—See FOUNDATIONS, PHILANTHROPIC; SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

COMMONWEALTH TEACHER TRAINING STUDY. The Commonwealth Teacher Training Study, begun in 1925 by Professors W. W. Charters and D. Waples of the University of Chicago and extended over a period of three years, was financed by the Commonwealth Fund of New York City whence it drew its name. The study was made possible only by the large scale cooperation of teachers, supervisors, school administrators, and professors in teacher training institutions throughout the United States.

The purpose of the study was to make a functional job-analysis of the activities and traits of teachers which would subsequently be useful as a basis for the development of teacher training curricula. The study was carefully planned to achieve reliability from a statistical standpoint. The investigation was reported under six general headings: "A Master List of Teachers' Traits," "A Master List of Teachers' Activities," "Reliability of the Evaluations," "Using the Evaluated Activities To Revise Existing Courses," and "Using the Evaluated Activities To Construct New Courses."

The section of the study which deals with teachers' traits lists an average of 25 traits for teachers at the kindergarten, intermediate, junior, and senior high school levels. These traits are then ranked as to importance by educational experts. The final lists for the different grade levels show striking similarity.

The section of the study which deals with the activities of teachers constitutes a major contribution to the literature of teacher training. The list of teachers' activities is classified in seven divisions, as follows: (1) "Teachers' Activities Involved in Classroom Instruction," (2) "Teachers' Activities Involved in School and Class Management," (3) "Teachers' Activities Involved in Supervision of Pupils' Extra-Classroom Activities," (4) "Teachers' Activities Involving Relations With Personnel of the School Staff," (5) "Teachers' Activities Involving Relations With Members of the School Community," (6) "Teachers' Activities Concerned With Professional and Personal Advancement," and (7) "Teachers' Activities In Connection With School Plant and Supplies."

These activities were then subdivided into various sections and subgroups, resulting in a master list of activities which the investigators then sent to various educational workers

and teachers for evaluation. The master list was submitted to teachers, supervisors, principals, and instructors in education at the primary, intermediate, junior, and senior high school levels in rural and city school systems and in teacher training institutions to be evaluated on the basis of the following four criteria: (1) frequency of occurrence, (2) relative importance, (3) relative difficulty in learning, (4) value of pre-service training. Summary tables of the tabulated replies rank each activity by deciles on the basis of these criteria for the different groups and levels in the teaching profession. The sound statistical procedures utilized by the investigators assure the reliability of their findings.

The value of this entire functional analysis of teacher traits lies in its implications for teacher education, and in its direction for the construction of teacher training curriculums. The authors devote a considerable section of their report to the question of utilizing this material in the formulation of professional courses of study for teachers. They indicate how their data may be used in the improvement of existing courses and curriculums, and how their data may be utilized in the construction of new teacher training programs. They also present their own theory of the professional curriculum for teachers. The entire study is a systematic, on-the-job approach to the problem of teacher education. Its contribution in this area is one of major significance. (See *TEACHER EDUCATION*.) R.N.C.

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COMMUNICABLE DISEASES OF CHILDHOOD. The major health problems of childhood and youth are the acute, communicable diseases. A disease is called *com-*

COMMUNICABLE DISEASES OF CHILDHOOD

municable (contagious, infectious) if it spreads from person to person, the second illness being the same as the first. Because of the prevalence of these diseases, and because the first contact usually results in infection, they are usually acquired early in life. Those persons who have been protected from exposure during childhood and who have not developed immunity may and often do acquire these so-called "childhood diseases" during adult life.

Modern methods of prevention and treatment have reduced the incidence of these diseases and the dangers of the diseases themselves and their possible complications. No infectious disease should be treated as trivial; no child should be exposed to them deliberately or because of carelessness. These illnesses produce needless suffering and, even though themselves relatively insignificant, may be followed by dangerous complications; or they may reduce general resistance so that latent or dormant infections become activated.

The close contact that is unavoidable among children in a classroom makes for the easy spread of these diseases. A running nose, a cough, fever, nausea, pallor, sore throat, or skin eruptions may be the early symptoms of one of the communicable diseases. The function of the teacher is not that of a diagnostician. Familiarity with these symptoms and an awareness of their relationship to more serious conditions should constitute part of the teacher's training equipment. An intelligent daily inspection of the pupils and the isolation of any who show any signs that may be significant of disease may prevent the development of a serious epidemic. The health of the individual school child, of other members of the school community, and frequently of the pre-school children depends to a great measure on the keen eye and alert mind of the health-conscious teacher.

Measles. The most prevalent of all communicable diseases, measles, is too often disregarded because it is mistakenly considered to be inevitable and unimportant. In the United States about 5,000,000 cases, with 10,000 deaths, occur annually. During the first three years of life, the mortality rate may be as high as fifteen to twenty per cent; by the age of ten, it falls to about one per cent and remains at this level throughout adult life. A child born of a mother who has had measles at some time during her life

is immune for about three months; thereafter susceptibility is practically universal. Except in isolated communities, permanent avoidance of the disease is almost impossible. It should however be delayed as long as possible, since the older the child the less the likelihood of serious complications. One attack usually confers permanent immunity, though second and third attacks have been known to occur.

About eight to ten days after exposure to measles, the early symptoms appear. They resemble those of a severe cold: running nose, sore eyes, irritated throat, slight cough, and moderate rise in temperature. Since the disease is apparently transmitted by droplets from the nose and mouth, this is the most infectious period of the disease, yet the most neglected. Three or four days later the characteristic reddish rash appears, first on the forehead and neck, then on the whole body. The rash lasts from four to six days and gradually fades. Measles is communicable until five days after the rash disappears.

Lung and ear complications are the most to be feared in measles, bronchopneumonia being the most frequent. Tuberculosis frequently develops in lungs in which resistance has been lowered by measles.

The protection of children against colds will also reduce their exposure to measles. Children who have been exposed to measles may be protected by the injection of any one of several available preparations: blood taken from someone who has recently convalesced from measles or who has had measles at some time in the past; or fluid obtained from the placenta after childbirth. Such injections, if given within five days after exposure, may prevent the disease; if given from the fifth to the eighth day, they will make the attack much milder.

Whooping Cough (Pertussis). Whooping cough, caused by the *bacillus of pertussis*, is one of the most serious diseases of infancy and old age. Since there is no inherited immunity, children may develop it very early in life. During the first year of life, the mortality rate may be as high as twenty-five per cent. Fully one-half of the cases occur during the first two years. The disease is serious at whatever age it occurs, for it may be followed or complicated by pneumonia and it is second only to measles in producing a predisposition to tuberculosis. In 1935 it caused more deaths among children

COMMUNICABLE DISEASES OF CHILDHOOD

of the United States than scarlet fever and diphtheria combined. One attack produces immunity.

Ten to fourteen days after exposure to the disease, the child shows the relatively mild symptoms of a cold: running nose, slight temperature, slightly sore throat, and an irritating cough. These symptoms gradually increase in severity over a period of about ten days. Then appear the characteristic attacks: a series of fifteen to twenty coughs during which the child takes in no air and usually turns blue; this spasm is followed by a sharp intake of breath which produces the identifying "whoop." The paroxysm is usually followed by vomiting. The frequency and severity of the spasms depend on the severity of the infection.

The disease is most contagious during the catarrhal period, the first ten days, and may be transmitted for a period of from six to eight weeks. This long period of communicability, lasting even after the "whoop" has disappeared, the frequently mild cases that allow the child to remain at play, and the relatively mild cases among adults in which the symptoms are not recognized but the possibility of transmission of infection is high, all tend to make it difficult to prevent the infection by preventing contacts. Although not accepted by all authorities, a vaccine has been prepared. Its use has resulted in reported protection against the disease in many children, and weakening of the symptoms in all on whom it has been used.

Mumps (specific parotitis). Mumps is a relatively mild infectious disease characterized by inflammation and enlargement of the salivary glands under the jaw and in front of the ear. The ages of greatest susceptibility to the disease are between six and sixteen. The disease is transmitted by direct contact and is communicable as long as the swelling lasts. It is practically never fatal, but is important because of a possible complicating inflammation of the sex glands in males, with resulting sterility. This necessitates rest in bed and careful medical attention as long as the swelling in the gland exists.

Diphtheria. Diphtheria is due to the rod shaped bacillus of diphtheria (known because of its discoverers as the *Klebs-Loeffler bacillus*). Susceptibility to the disease is not universal; it varies in individuals and changes with age. Most new born babies

are not susceptible, but this immunity is gradually lost. At the end of the first year, forty per cent are susceptible; by the end of the second, sixty per cent. After the fourth year, susceptibility decreases gradually so that at the age of twelve only about twenty-five per cent are susceptible. Children from two to six years old make up the majority of cases.

The germs invade the tissues lining the nose and throat, attach themselves and grow at the expense of these tissues, producing a foul, grayish membrane. The germs also produce a specific toxin (poison) which circulates throughout the body causing great damage to organs remote from the original focus: the most serious harm being suffered by the heart and the nervous system. The disease is transmitted by direct contact with the germ, either by contact with droplets from the nose or throat or with articles contaminated with the discharges: lead pencils, handkerchiefs, shared food.

From two to five days after exposure, the symptoms of a rather mild sore throat with moderate temperature appear; the patient, however, seems much sicker than he should be with such slight symptoms. The redness of the throat increases, soon yellowish spots develop and fuse to form the typical membrane. A positive diagnosis is made on finding the diphtheria bacillus in a smear taken from the membrane.

When the disease is suspected, *diphtheria anti-toxin* should be administered immediately without waiting for laboratory confirmation of the diagnosis. Earliness of anti-toxin administration is of prime importance in treatment. Anti-toxin neutralizes the dangerous effects of the circulating poison and inhibits the further activity of the germs.

The approved method of protection against diphtheria is the inoculation with *diphtheria toxoid* or *diphtheria toxin-antitoxin* of all who are susceptible to diphtheria. This susceptibility is determined by the *Schick test*. A standardized amount of *diphtheria toxin* is injected into the skin of the forearm. If an area of redness develops at the site of the injection within twenty-four to forty-eight hours, the person tested is susceptible, and needs the protecting inoculation; if the area remains normal, the injection is not needed, because immunity already exists.

COMMUNICABLE DISEASES OF CHILDHOOD

Anterior Poliomyelitis (Infantile Paralysis). Anterior poliomyelitis, a disease which attacks those cells in the spinal cord which control the nerves involving voluntary muscular activity, is apparently caused by a minute disease producing substance (a filterable virus) which enters the body by way of the nose or mouth. Although essentially a disease of children, infants are usually immune; it may attack adults. The early symptoms of the disease are headache, nausea, vomiting, and moderate rise in temperature. This may continue for three or four days, and be followed by immediate improvement or by severe headache, drowsiness or restlessness, stiffness of the neck, muscle spasms, and paralysis. The "pre-paralytic" phase may be the only evidence of infection. Except during epidemics, these mild cases may go undiagnosed; but they are as infectious as the frank cases.

There is no specific accepted preventive vaccine or serum treatment. The only valuable procedure is the isolation of normal children from contact with the general population during an epidemic.

Tuberculosis. Tuberculosis, long thought to be inevitable, is classed today among the preventable, communicable diseases, amenable to control. Previously first as the cause of death, it now occupies seventh place as far as the general mortality rates go; it is still at the top of the list for those between fifteen and forty. The cause of tuberculosis is the tubercle bacillus (the *bacillus of Koch*); there are four distinct strains of which only the bovine (bacillus of cattle tuberculosis) and the human may infect man. The bovine strain was a serious menace to the health of children who ingested it when drinking milk from tubercular cows. Careful cattle inspection, the destruction of infected cattle, and the widespread pasteurization of milk (which kills any bacilli that may be present) has made this source of infection rare. Bovine infection of children usually caused bone infection and deformities such as hump back; it also resulted in gland and intestinal manifestations of the disease. Today nearly all cases of tuberculosis in humans come from other humans and the majority are lung tuberculosis, although the tubercle bacillus can attack any tissue of the body.

Infection often occurs during infancy and

is the result, usually, of the inhalation of living tubercle bacilli which have been discharged fairly recently, and usually by means of expectoration from the body of someone else, direct droplet infection, kissing, or the use of contaminated articles. The period of incubation (interval between exposure and development of symptoms) varies tremendously. An infant may develop a generalized infection and die within a few weeks, or the bacteria may become walled off and remain quiescent for years, or even for life. The adult type of infection is due either to a reactivation of one's own dormant infection (as a result of overwork, lack of food, lack of rest, or an intercurrent infection such as measles or pneumonia) or as a result of infection with another dose of bacilli.

The early symptoms of tuberculosis are indefinite, and a diagnosis cannot be made on them alone. Loss of weight, loss of appetite, indigestion, ease of fatigability, loss of energy, hoarseness, a persistent cough, pain in the side, feverishness (particularly in the afternoon), marked sweating, and spitting of blood are all reasons for seeking medical advice. The most valuable early information is furnished by an X-ray examination; changes in breath sounds and the definite finding of tubercle bacilli in the sputum come later.

A person who has ever taken in tubercle bacilli will react positively to the tuberculin test. The test is performed by the injection of a minute amount of tuberculin (Mantoux test) into the skin of the forearm. If the area of injection becomes red, it indicates that the person has at some time been infected. This infection may be active at the time of testing, it may have occurred long ago and been completely healed; it may have been overcome without ever having produced symptoms. Those who react negatively (skin at site of injection remaining normal) have never taken in the germ, but are not necessarily immune for life. The test is used extensively in school and college groups. Those who react positively are examined by X-ray. The great majority of positive reactors are found not to have the disease; some show findings which make re-examination desirable; and a few are found to have the disease in active form. This procedure is of inestimable value in discovering early cases and sources of infection.

COMMUNITY AND SCHOOL

The treatment of tuberculosis is dependent on prolonged, complete rest, and an abundant nutritive diet. Climate is not an important factor, but treatment is best carried out in sanatoria; this is of benefit to the patient and protects those at home. Recovery is likely if treatment is begun early, as when diagnosis is made by X-ray, before recognizable general symptoms appear (X-ray evidence may be present as long as two and a half years before clinical symptoms). A.M.S.

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COMMUNITY AND SCHOOL. Realistic educators have long recognized the social and pedagogical desirability of closely relating school experiences with larger life activities. Rousseau, Pestalozzi, Spencer, and Parker (*qq.v.*) were among earlier exponents of direct experience and social realism as basic foundations of effective education. In more recent times the philosophies of John Dewey and other influential American educators reflected a critical appreciation of precisely this same necessity.

Meanwhile the increasing industrialization, urbanization, and interdependence of modern society have produced two societal developments which emphasize this educational philosophy and have profoundly affected both purpose and program of the contemporary school. These factors are (1) the decline of primary community relationships, with consequent loss of adequate opportunity for effective youth education through personal, responsible, and frequent participation under adult direction in significant community activities; and (2) the increase in both internal and international tension, strife, and breakdown which culminated in the great depression of the 1930's and the global war of the 1940's.

Thus the influence of newer educational philosophies has combined with that of disintegrating social movements to promote increasing professional awareness of the wide

gulf which exists between the teachings of the traditional school and the essential life-needs of modern youth. In consequence there is a growing agreement that school education can no longer effectively promote either individual self-development or general social welfare unless it is projected out of the cloistered classroom and into the living community, the child's primary scene of present and future life concern. Widespread interest in constructive school-community interaction for educational purposes has therefore developed during recent years.

Such thinking and experimentation as have been done in this area have channeled into at least five major conceptions of what community education should do. These five conceptions are not mutually exclusive, and, broadly considered, represent the progression of emphases developed by leading community-minded educators during the past two or three decades. Viewpoints 1, 2, and 3, it will be observed, draw the community into the school; while viewpoints 4 and 5 take the school into the community.

1. *The school should operate as an educational center for adults.* Since education is a life-long, continuous process, the use of the school plant and facilities should be available to adults as well as to children. There, in late afternoons and evenings, adults of the community should find their educational and social center wherein cultural subjects, arts and crafts, vocational training, civic forums, gymnasium, cafeteria, and the like are open to them.

2. *The school should utilize community resources to invigorate the conventional program.* In order to vitalize the curriculum and teaching methods, give depth of meaning to instruction, and provide for direct as well as vicarious learning experiences, the school should survey the educative resources of its community, catalog them, and utilize them when appropriate for its established educational purposes.

3. *The school should center its curriculum in a study of community structure, processes, and problems.* Every community is a microcosm of human experience, since within it go on the basic processes and related problems of making a living, sharing in citizenship, exchanging ideas, securing education, adjusting to people, maintaining life and

health, enjoying beauty, meeting religious needs, engaging in recreation, and the like. The core curriculum should therefore be organized around a direct study of the local and regional community's physical setting, organization, class and caste structure, basic activities, climate of opinion, and needs and problems as these and similar factors affect individual and group welfare.

4. *The school should improve the community through participation in its activities.* Students, teachers, and civic-minded laymen should cooperatively plan and execute various service projects of a genuinely civic nature. Thus youth will learn that the community has need of its service; and the community will discover that youth's contribution to the general welfare can be at once important, intelligent, and effective.

5. *The school should lead in coordinating the educative efforts of the community.* Since all life is educative, the rôle of the school in the total educational process is primarily a coordinating and a residual one. The school, therefore, should lead all the educational agencies of the community into an organized and cooperative program for the more effective education of youth and adults in school and out, and should itself provide only those aspects of a desirable education which people in such a program do not obtain elsewhere, or receive in insufficient degree.

One or more of these five approaches to community education may be found in many conventional schools, but only the Community School is sufficiently functional and versatile to utilize them all in a balanced manner. Such a school operates as a full-time educational center for the entire community population, utilizes all appropriate community resources for instructional purposes, centers its curriculum in the community itself, actively serves the locality through direct attack upon some of its pressing problems, and leads in coordinating democratically all possible community agencies toward the common goal of more effective education in that locality. This community school, historically considered, represents the second stage in "progressive education," and the third major professional orientation held by educational leaders since the turn of the present century: (1) the subject-centered traditional school, insisting upon book-knowledge-set-out-to-be-learned; (2) the

child-centered activity school, emphasizing child-interests-to-be-expressed; and now (3) the life-centered community school, stressing human-needs-to-be-met.

Experience indicates that the most successful community-centered educational programs are those which operate according to the following basic principles:

1. Distinguish three omnibus aims in the area of school-community relationships: (a) social comprehension—developing an understanding of the changing culture; (b) social motivation—establishing incentives to democratic social improvement; and (c) social skills—increasing personal competence in community participation and leadership.

2. Define the community as the service area of the school; but relate it directly and constantly with the larger areas of state, region, nation, and world.

3. Recognize three major levels of culture to be studied in every community, immediate or remote, contemporary or historical: (a) the material culture—geographic factors together with the things people have made or used; (b) the institutional culture—the mass habits or customs of the people; and (c) the psychological culture—the motivating beliefs of the people.

4. Emphasize physical setting, social processes, social structure, and social problems; and stress the close interrelationship among these factors.

5. Plan a sequential development of student experiences throughout each year of the entire school program.

6. Begin this sequence with consideration of material culture in the local community, in particular reference to its geographic and demographic aspects.

7. Expand this initial study in three related dimensions: (a) space—in other areas, geographically; (b) time—in other communities and areas, historically; and (c) scope—in institutional and psychological culture levels.

8. Utilize all appropriate techniques for effectively relating the school with the community: documentary materials, audio-visual aids, resource people, excursions, surveys, service projects, work experience, and extended field study.

9. Focus attention upon the status, problems, and social contributions of youth who have participated in the basic processes of

the various communities and societal areas studied.

10. Direct primary personal loyalties to a people's finest traditions, ethical ideals and social values, rather than to their geographic territory, political structure, or any other segment of their material or institutional culture.

Such basic principles, intelligently developed within practical programs, permit full recognition of the central tenet in the community-centered school philosophy: that education itself is inherently a social process which therefore cannot be truly realistic, vital, and defensible unless its curricular program is framed in terms of a well-pondered, firsthand acquaintance with significant aspects of the learner's physical, biological, and social environment.

E.G.O.

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COMMUNITY CIVICS — See CITIZENSHIP, EDUCATION OF.

COMMUNITY HEALTH — See HEALTH; HYGIENE AND HEALTH EDUCATION; SCIENCE, TEACHING OF.

COMPANY SCHOOL. A company school is essentially one that is controlled, operated, and maintained by the company for its own personnel, and refers to a variety

of training arrangements made by a company or firm for some or all of its employees. The company school (or *corporation school* or *factory school*, depending on the type of organization) is usually maintained for special groups, as for apprentices, foremen, salesmen, or office workers. The training may be short and intensive, or of a more extended nature. The instruction is given usually on the company grounds, but may be given elsewhere.

The adequacy of the company school as a means of vocational education has been criticized both favorably and unfavorably. Those who defend the company school see many advantages in having employers train their own employees. Such vocational training is likely to be more realistic than that given in some other vocational schools, which may be using obsolete machinery and processes. Since the company school is associated with an industrial plant, it is a relatively simple matter to articulate the training program with the industrial program so that the graduates of the school can step right into a job and do it well. Supply and demand of labor, too, are easily regulated because the company school can select and train only as many students as are likely to be needed. Obviously, there is little difficulty in placing the graduates since they go to work for the company that trained them.

Much of the objection to company schools comes from those who question the wisdom of the employer's supporting and controlling the vocational school. These critics object to having the school operated primarily for the employer's rather than for the student's benefit. The close relationship between school and plant does make it easier to place all graduates, but it is likely also to lead to the selection and training of students in terms of the employer's immediate needs rather than in terms of the type of training that will help most the individual student. Moreover, critics see little reason why efficiently administered public vocational schools cannot maintain such close contacts with industrial plants that the processes taught in the school are kept up to date.

The company school is operated and supported by industry because of the need such schools satisfy. As long as public vocational schools supply an inadequate number of

COMPARATIVE EDUCATION

properly trained people, industry will continue to operate schools to train the workers it must have.

F.T.S.

COMPARATIVE EDUCATION. Interest in the educational systems of foreign peoples has been manifested throughout history. One phase of the study of history of education (*q.v.*) has always been devoted to the interaction of educational theories and practices of different countries. It is only necessary to cite as an illustration the influence of European educational theories and educational practices upon the development and progress of education in the United States, and more recently of the United States upon the educational systems of other countries. During the formative period of education in the United States an extensive literature on foreign practices was accumulated in Barnard's *American Journal of Education* and later in the Reports and Bulletins of the United States Bureau (now Office) of Education. When the foundations for a national system of education were laid in England at the end of the last century and the beginning of this, Mr. (now Sir) Michael Sadler initiated the monumental series of *Special Reports on Educational Subjects*, which were published by the Board of Education and continued later in occasional educational pamphlets. Monroe's *Cyclopedia of Education* (1910-1913) included articles on education in different parts of the world. During and after World War I, interest in foreign systems and theories of education developed at a rapid rate, partly as a result of an awakened interest everywhere in international affairs generally, and partly as a consequence of the expanding concept of the scope of the study of education beyond the stage of teacher preparation.

It was on the basis of this interest that there were gradually developed in the United States, Great Britain, and Germany courses in comparative education, and an extensive literature has grown up as a result. If the history of education deals with the development of educational theories and practices and the rise of national systems in the past, comparative education is concerned with the current progress of the ideas and forces—political, economic, social, and cultural—that determine the peculiar characteristics of edu-

cation in different parts of the world.

Educational systems of national or cultural groups reflect the ideals, hopes, and aspirations of such groups. Accordingly, while the study of comparative education is concerned with such details as administration and organization, school buildings, curricula and courses of study, methods of instruction, textbooks, and salaries and status of teachers, for the student of education its primary purpose is to cultivate an insight into the meanings of the educational system that are studied. Approached from this point of view comparative education should contribute to a clearer insight into the problems of a philosophy of education built up inductively. In this way the student of education is enabled to recognize the important influence upon education of social, political, economic, and cultural backgrounds. Such an approach has become all the more necessary at a time when education is more than ever a concern of the national state, and when it is dominated by political considerations. No claim is made that educational theories and practices can be transferred from one country to another; the failure of such efforts even in reorganizing educational systems for so-called "backward" peoples may be cited as evidence. The essential contribution of comparative education as a professional study is to enrich and fructify ideas and thinking.

It is not the function of comparative education to determine whether one system of education is better than another, nor have any standards yet been developed for such determination. The word "comparative" is employed in the same way as in the terms "comparative anatomy," "comparative law," and "comparative literature."

In the development of the study of comparative education three centers have played an important role: the International Bureau of Education, Geneva, which publishes an *Annuaire International de l'Education et de l'Enseignement* (1933—); the Institute of Education of the University of London, which publishes *The Year Book of Education* (1932—); and the International Institute of Teachers College, Columbia University, which publishes the *Educational Yearbook* (1924—) and a series of studies on various phases of education in different parts of the world.

I.L.K.

COMPENSATION — COMPREHENSIVE EXAMINATION

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COMPENSATION. The term *compensation* is applied to the effort to hide or overcome a feeling of inadequacy, or some physical, social, or psychic defect, whether real or imaginary; and to acquire feelings of security, superiority, and social status. Strenuous attempts may be made to overcome the defect itself (direct compensation) or to develop some substitute competency or some counterbalancing or compensatory trait (indirect compensation). In its narrow technical connotation, compensation is limited to the latter phenomenon. But as ordinarily used the word includes the first meaning.

When the difficulty is attacked with extreme vigor, an excessive development of the trait being substituted may occur. This is referred to as *overcompensation* or *overreaction*.

The effort to compensate may be undertaken consciously and deliberately; or the effort may be the result of the gradual, unwitting acquisition of certain attitudes or habit patterns that may not be recognized as compensatory; or the motive may spring from conflicts that may have been completely obliterated from consciousness by the process of repression.

Compensation represents an aggressive, fighting attitude instead of retreat or surrender. Judiciously applied, it is a valuable method for overcoming personal limitations or for developing substitute proficiencies. The dogged determination to succeed engendered by a felt limitation may carry the individual to higher levels of achievement than he would reach without the "compensatory drive." Nevertheless, because it is rooted in an unhealthy soil (highly emotionalized), the compensatory drive may lead to various kinds of compensatory maladjustments, such as an exaggerated aggressiveness, a fictitious superiority complex, irrational emotionalized behavior (because the compensatory drive is unrecognized, the conflict having been repressed into the unconscious, according to the psychoanalytic theory), jealousy, belittlement

of others, fanaticism, domineeringness, rebelliousness, prudishness, arrogance (as a "reaction formation" against cowardice), delusions of grandeur or of persecution, injurious daydreaming or repressions, and various types of malbehavior. J.E.W.W.

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COMPLETION TEST—See OBJECTIVE TESTS AND EXAMINATIONS.

COMPOSITION, TEACHING OF—See ENGLISH, TEACHING OF; LANGUAGE ARTS.

COMPREHENSIVE EXAMINATION.

The comprehensive examination is one which is administered for the purpose of testing the student's proficiency in a broad field of knowledge as contrasted with the usual school or college test which measures the student's ability in a single subject or in a single semester's work in that subject. Although the term comprehensive examination has been used only recently in the United States, the concept itself is much older. Most early American colleges used some form of general examination at the end of the college course, until differentiated curricula and greater freedom of choice of electives made impracticable the administration of a general examination to all students. The comprehensive examination has been used most frequently at liberal arts colleges, but modifications of the comprehensive examinations have been used at all levels from the elementary school to graduate study.

About 1930 there was a marked increase of interest in the comprehensive examination. Whitman College (Walla Walla, Washington), however, required an oral examination in the major fields by its students as early as 1913. At first the term was applied almost exclusively to an examination given to seniors to determine their standing for honors or for the baccalaureate degree in the fields in which they had concentrated their studies. In many colleges today such an examination is still given only to candidates for honors,

COMPREHENSIVE EXAMINATION

and in other colleges only certain departments require it of all seniors. Present practice does not limit to seniors the administration of comprehensive examinations; these examinations are sometimes conducted after students have completed their first two years of college work, and the results are used as a basis for determining whether these students shall be admitted to the work of the last two years.

The pattern of the comprehensive examination has been influenced by the practices of leading English universities, where this examination is of long standing. The examination may be either written or oral, or both written and oral. The questions, usually of the essay and discussion type, tend to measure not the student's memory of factual details but his ability to use, to interpret, and to apply the information he has acquired. Since the scope of the examination transcends departmental lines, the student is given an opportunity of demonstrating that he has integrated the experiences he has had in various courses and in different departments. Because of the ease with which short answer questions are used for diagnostic and comparative purposes, one part of the written examination—sometimes the entire examination—may consist entirely of objective questions.

When used at graduate schools, the comprehensive examination tends to be narrower in scope than are the usual comprehensive examinations at undergraduate colleges. As used at universities, the comprehensive examination usually is confined to the area in which the student is at work, although the examination need not be limited to the subject matter of his own department and several departments in related fields may conduct joint examinations for all students in those fields. The comprehensive examination has been used as a means of overcoming the graduate student's temptation to devote so much of his time to specialized research that he fails to see the larger implications of his problem. Many universities which do not conduct comprehensive examinations seek to serve the purposes of such an examination by their general examination for matriculation or for the degree.

The administration of comprehensive examinations has been justified as a means of maintaining academic standards and as an

instructional procedure that has educational values in its own right. Where the passing in comprehensive examinations is a requirement for a degree, it is more difficult for the inferior student to get his degree merely by passing in the required number of courses. The comprehensive examination demands of him that he demonstrate his ability to think in terms of larger problems than are discussed in any single course. His general competence in a major area is given the attention it merits as a criterion for determining his readiness to receive a degree.

In some institutions the major value of the comprehensive examination is found in its usefulness as an instructional procedure rather than in its efficacy as a test of academic achievement. The nature of the questions asked and the kinds of activities and experiences that are required in order to prepare oneself to pass in the examination are significant because they indicate to students what are regarded as desirable outcomes of a college education.

From this point of view, comprehensive examinations are valuable only to the extent that they reflect, or help formulate, a sound philosophy of education. Underlying these examinations is the basic assumption that a college education consists of more than the successful completion of a specified number of discrete courses. For reasons of academic convenience, colleges divide the study of our culture and civilization into departments and subdivide these further into courses. These subdivisions have meaning only when they are seen as parts of a larger picture, and the student's career at college is of greatest value when he is constantly integrating the experiences gained in his various college course.

The comprehensive examination seeks to demonstrate to students that they have a large share of responsibility for integrating their courses into a meaningful whole. It helps them to learn that knowledge is not so compartmentalized as the college curriculum, and that it is inadequate to look upon college work as a succession of courses that are taken, passed, and forgotten.

On the whole, critics of the comprehensive examination have objected not to the purposes which the administration of this examination seeks to serve but to the desirability

of using the examination as a means of achieving these goals. They question the wisdom of using a single examination as a means of determining whether the student is ready to receive a degree. To them the analysis of the student's entire record at college offers a more valid basis for evaluating his intellectual stature than does his performance on a single examination. Critics have challenged the assumption that the integration of the student's experiences in his various courses possesses a value distinct from the benefits derived from the courses themselves. Even those who accept this assumption nevertheless question whether the administration of comprehensive examinations helps attain this goal in the absence of thoroughgoing changes in curriculum organization and methods of teaching. From the administrative point of view, the examination is sometimes objected to because it sets up an additional requirement for a degree that may not meet with the approval of students, faculty, and members of the community. Moreover, if the examination is to assume the importance which its proponents claim, it makes heavy demands on the time of both students and faculty—time, say some critics, that may well be spent in other and more profitable ways.

R.A.K.

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COMPREHENSIVE HIGH SCHOOL.

A *comprehensive* high school offers in one administrative unit, usually in one building, all the programs of secondary education provided by its community or school district. A *specialized* high school, on the other hand, offers only a part of the community's secondary school program.

The question of whether the high schools be organized as comprehensive high schools or as specialized high schools usually is not a pressing one since few communities can support more than one high school. Of necessity, most American high schools are comprehensive, with the specialized high schools found only in some of the larger and wealthier city school districts.

Where the choice between comprehensive and specialized high schools does exist, many factors enter into the judgment of preference for one or the other. The comprehensive high school is favored by those who stress the advantage of having secondary school students learn to get along with people of varying interests and abilities, the ease of transferring students from one course to another if both courses of study are under a single administrative body, the enrichment of the educational program of all students that is facilitated when many kinds of equipment are housed in the same building, and the obvious economy of joint use of such facilities as the gymnasium and the auditorium.

The advocates of specialized high schools stress the differences among the many types of high school courses and assert that each course of study can be most significant only when teachers and administrators focus their attention on the needs of students following that course of study. Moreover, many specialized high schools require expensive equipment, of which full use is not made if the majority of the students at that school are pursuing a different course of study. The proponents of the specialized high schools point, also, to the intangible value which the establishment of specialized high schools has on the student body. At a comprehensive high school, students who take an industrial course may feel that they are not so favored as are those who take the college preparatory course; when such industrial students attend a specialized high school, they can be helped to develop a pride in school and in themselves. That some educators believe specialized high schools do have much to offer to students is reflected in such a school system as that of New York City, which has a great many specialized high schools, ranging from a high school of music and art to a food trades high school. Even in that city, however, most high schools are comprehensive, some of them conducting as many as four or five different kinds of courses. (See SECONDARY EDUCATION.)

J.B.

COMPULSIVE ACTS. Compulsive acts consist of uncontrollable impulses to pursue some particular form of behavior, such as touching objects in a certain order, constantly counting things, stealing, or setting fires. They frequently are associated with specific

COMPULSORY ATTENDANCE

fears or phobias (abnormal fears), serving as distractions which relieve tension, but do not eliminate the fear. Thus, intense fear of death, which may be lessened by counting objects, returns if the counting is prevented.

Since the compulsive act is the overt manifestation of emotional maladjustment, it can be corrected only by discovering and treating the emotional problem itself. Preventing the compulsive act is ineffective, since the maladjustment causing it will appear again in another and perhaps less desirable form of behavior. Furthermore, the attempt to convince the child by logical arguments that his compulsive acts are undesirable will do little, if any good, since the compulsion has no rational basis. Even if it were moderately successful, this method leaves the child with his emotional problem, and only takes from him the feeling of temporary security which the compulsive act afforded.

A clear distinction must be made between a compulsive act and a habit (*q.v.*). A habit usually can be modified without employing psychiatric techniques, because it commonly involves no deep-seated emotional tensions which are the underlying causes of compulsive acts. For example, if an adolescent boy has acquired the habit of smoking, it may be modified by any of the procedures customarily used in habit formation; e.g., he may give up smoking while in athletic training. If, however, his smoking is a compulsive act, arising from a desire to convince himself and the world that he is fully mature, ordinary methods will have little effect upon his smoking. (See FEAR; MENTAL HYGIENE.) R.V.M.

COMPULSORY ATTENDANCE. The idea that the success of a democracy can be assured only by having a literate population was so firmly accepted by early leading statesmen and lawmakers that it is not surprising to find the concept of compulsory education incorporated in the constitutions of the forty-eight states. Either through specific provision or by implication, each of the state constitutions makes provision for the establishment of a school system.

By the middle of the 19th century, it was evident that merely providing educational opportunities was not enough to insure literacy. Some means had to be found that would insure a minimum amount of education to all

the children. In 1852, Massachusetts passed the first law which required attendance at school. By 1918, all the states, including the District of Columbia, had enacted legislation requiring school attendance between specified ages. As a result of amendments and the enactment of new laws, the provisions for compulsory school attendance have been gradually enlarged and strengthened. In general, there has been a tendency to increase the minimum amount of education required of all children.

Compulsory attendance laws have not been enacted without opposition. The right of the state to compel children to attend school has been challenged as un-American in principle on the basis that such laws represent an encroachment by the state on the personal liberty of the parents. However, the right of the state to require children to receive a minimum amount of education under either private or public auspices has been upheld by court decisions.

While the educational welfare of children has been the major consideration in enacting compulsory attendance legislation, much of the progress in this direction may be attributed to the increasing financial ability of the states to provide more education and to the fact that the employment of youth has threatened the welfare of the adult worker. The extension of the compulsory attendance laws is closely associated with the child labor movement. (See CHILD LABOR.)

The effectiveness of compulsory attendance laws is dependent on a number of factors including (1) the minimum number of years of required attendance; (2) the minimum and maximum compulsory attendance ages; (3) the minimum level of educational achievement required; (4) the minimum number of days the schools are required to be in session each year; (5) the minimum number of days of required attendance each year; (6) the number of hours each day a school is required to be in session; and (7) the minimum number of hours of required attendance each day.

There is considerable variation in the provisions of compulsory attendance laws among the forty-eight states. In about two-thirds of the states, full-time school attendance is required to the age of sixteen. Children may leave school at the ages of fourteen or fifteen

COMPULSORY ATTENDANCE

in four states, and at the age of seventeen in eight states, while in six states children are required to attend school until they reach the age of eighteen unless excused for reasons specified in the attendance laws. The minimum age ranges from six to eight, with about two-thirds of the states having a minimum age of seven, although children below the age of six are permitted to attend school. The usual number of years a child is required to attend school is nine, but this varies from six in two states to twelve years in one state. In most states a child may not be exempted from the compulsory age requirement unless he has completed the work of the elementary school. In eight states, however, the completion of the work of the twelfth grade is required. In some states a child may be excused from school attendance only after reaching a certain age and provided he has completed the work of a certain grade. While a few more than half of the states require that schools be in session for at least eight to nine and a half months, almost half of the states do not require that schools be in session more than three to five months. The number of days or proportion of the minimum school term a child is required to attend school also varies among the states, as does the length of school day and the minimum number of hours of attendance required each day. (See ATTENDANCE OF PUPILS.)

Although the ideal of having every child of elementary and secondary school age attend school has not been realized, the proportion of children enrolled as well as the average daily attendance and the number of days attended each year of those enrolled has been increasing steadily.

There are a number of factors which tend to reduce the effectiveness of compulsory attendance laws. In many states inadequate finances prevent the development of an adequate educational program as well as an effective administration of the compulsory attendance laws. Specified exemptions from the mandatory requirements, however, reduce the effectiveness of the compulsory attendance laws probably more than any other single factor.

Every state permits a child to be excused from attending school if he is legally employed and is of a certain age, usually 14-16, in some states 17 or 18, and provided he

meets specified educational requirements. The educational level of achievement required of children before they can be released from attending school to engage in legal employment is set at the completion of the eighth grade in twenty-one states, the seventh grade in three states, the sixth grade in nine states, ability to read and write in seven states, while in nine states there are no specific requirements. However, in most industrial states attendance in a continuation school (*q.v.*) for a certain number of hours each day or each week is required of children leaving school to work who are under sixteen years of age and who have not completed the high school course. In some states this requirement applies to youths of seventeen and even eighteen years of age.

In order to realize more fully the ideals of compulsory education, it will be necessary in the future for some of the states to give more attention to the possibility of lengthening the period of compulsory education by requiring attendance at an earlier and to a later age, as well as to the possibility of increasing the number of days the school is in session and the number of days of required attendance during a year. In terms of attendance standards prevailing in 1935-36, the average child in one state, at the end of eight years of elementary schooling, has almost six and a half more years of education in the same period than does his cousin in another state. The possibility of establishing higher standards of educational achievement as a requisite for exemption from the mandatory requirements for the purpose of working should be considered by several of the states. All of the states will need to give special consideration to the possibility of providing (1) public relief to indigent children and/or their parents, (2) transportation for those children who do not live within a reasonable walking distance from the school which serves their needs, (3) adequate opportunities for atypical children to receive instruction and (4) more effective means of enforcing the compulsory attendance laws as well as decreasing the amount of irregular attendance. (See ATTENDANCE OF PUPILS; TRUANCY.) W.V.N.

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COMPULSORY EDUCATION — CONFLICTS

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COMPULSORY EDUCATION — See **COMPULSORY ATTENDANCE**.

CONCERT RECITATION. The giving of a response by the class speaking in unison is *concert recitation*. For example, children may drill on the correct spelling of a word by spelling it together orally. Concert recitation is also a common practice in the teaching of pronunciation in a foreign language class.

Those who favor concert recitation point to the fact that it gives every pupil a chance to recite and thus facilitates learning by stimulating the child to respond. The auditory response adds to the clarity of the child's impression and thus encourages learning. By letting the pupil recite as one of a chorus, the concert recitation reassures the child who is too timid to speak before an entire class.

The consensus among teachers does not favor the frequent use of the concert recitation unless it meets a specific need, as in a foreign language class or when it is modified for use in a poetry class as choral speaking (*q.v.*). Teachers find that many students learn little through the concert recitation because only a few actually do the reciting while the majority merely follow along where they are led. The learning value of speaking alone is probably greater than that of participating in a group response. Furthermore, the concert recitation favors rote memorization rather than the intelligent use of factual material.

F.A.B.

CONCOMITANT LEARNING — See **LEARNINGS, SIMULTANEOUS**.

CONDEMNATION PROCEEDINGS.

In order to obtain property, such as sites or buildings, for school purposes, it is sometimes necessary for the educational authorities to resort to the legal process of condem-

nation. By this course the authorities appropriate the property for public use under the right of eminent domain, which recognizes the superior dominion of public use over private property. Reasonable compensation must of course be paid for the acquired property. Condemnation proceedings ought to be used as a last resort after other means, such as trying to reach agreement through conferences, have been employed unsuccessfully. C.A.D.Y.

CONDITIONAL PROMOTION — See **PROMOTION**.

CONDITIONING — See **PSYCHOLOGY, SCHOOLS OF**.

CONDUCT—See **DISCIPLINE**.

CONFERENCE FOR EDUCATION IN THE SOUTH. This conference, whose moving spirit was the philanthropist Robert C. Ogden, began in 1898 as the Conference for Christian Education in the South. Its annual meetings brought together influential Southern leaders and Northern philanthropists and helped revive interest in public schools of the South. The conference also led to the establishment of the General Education Board, the Rockefeller-sponsored philanthropy, that was to provide in the next generation both leadership and financial support for the development of Southern public schools. H.M.B.

CONFLICTS (MENTAL AND EMOTIONAL). A *mental conflict* is a struggle between two or more incompatible urges. A state of indecision or vacillation, together with an ensuing tension and conflict, is produced when the individual must make a choice between antagonistic motives that are about equally strong, such as the desire to play ball and the obligation to prepare the written assignment. A state of conflict also arises when there is a discrepancy between the individual's desires and his capacity to achieve. The nature of the desires that clash and the resulting strain may be clearly apprehended by the individual, or the process may be more or less unconscious. Innumerable specific causes for mental conflicts exist in the complicated environments to which people must adjust: business reverses, religious qualms, political upsets, unfortunate love episodes, philosophical doubts, failure

CONSOLIDATION OF SCHOOLS

in studies or job adjustment, etc. But the most serious conflicts are created, usually in early life, by deep-seated antagonisms between the individual's egoistic desires and the social restraints imposed by the laws or conventions of society. Essentially, conflicts are socially produced.

Many conflicts are trivial and produce no injurious consequences. Properly utilized and resolved, a conflict may prove beneficial in developing initiative, versatility, resourcefulness, and a forceful dynamic personality. On the other hand, deep-seated, unresolved conflicts are often difficult to dissipate and may produce serious mental disturbances and maladjustments, such as fears, worries, anxieties, inhibitions, compulsions, inferiority feelings, feelings of shame and guilt, various abnormal physical symptoms (tics, automatisms, paralyses, palpitation, etc.), nervous maladies, mental dissociations, hysteria, and various defense or escape reactions (e.g., day-dreaming, procrastination, regression, repression, overcompensation, and malbehavior). The guilt complex in extreme cases may produce paralyzing attitudes of self-condemnation which may in turn produce further conflicts.

According to the psychoanalysts, the conflict is between antagonistic conscious and unconscious forces—between the Id (unconscious instinctual impulses craving immediate satisfaction) and the superego (a sort of overego, partly conscious and partly unconscious, that causes the ego to curb the Id, thus creating distress, neuroses, and defenses). Painful shame-producing experiences, when frequently repressed into the unconscious, produce a state of tension because the repressed desire (although forgotten because it has been rendered unconscious) is forcibly prevented from entering consciousness. According to Freud, the chief sources of the more intense emotional conflicts are sexual inhibitions and traumas, commonly dating from early life, caused by sexual perversions, repressions, or abnormal fixations of the libido (mental or psychic energy, sexual in origin) rather than by violent sexual assaults.

The sources of mental conflicts cannot be limited to the sex or power urges, however. Occasions for conflicts arise in any phase of the individual's socio-psycho-biological ac-

tivities whenever there is a lack of internal unity, integration, or harmony between the individual's desires and the demands of society.

Conflicts can be overcome by discovering and removing the causes—psychoanalytically or otherwise—by affording satisfying emotional and work outlets, by developing emotional poise, by accepting inevitable defeats with equanimity, by frankly evaluating one's problems and assuming an objective attitude toward them, by facing the world realistically, by developing beneficial compensations for personal lacks, by proper social therapy, and, in certain cases, by appropriate medical or psychiatric treatment. J.E.W.W.

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CONSOLIDATION OF SCHOOLS.

School consolidation involves school administrative units, fiscal units, and attendance units. There are two more or less distinct types of consolidation: (1) a combining of two or more school administrative (and often fiscal) units with no change in the location of schools or their organization and (2) a consolidating of small schools into one or more larger attendance units. The two types of consolidation may occur concurrently. School consolidation and centralization are now generally considered as synonymous terms.

American public education began as a local enterprise. This naturally resulted in many small school districts and small schools. Through consolidation, attempts are made to merge these small schools or school districts into larger units. The power to consolidate schools or school districts resides in the state legislature. Legislation may be either *mandatory* or *permissive*. Under permissive legislation the patrons of the school district, or districts, involved must first give their consent to the proposed change; under mandatory legislation such consent is unnecessary.

In the period from 1916 to 1936, consoli-

dated schools in the United States increased in number from approximately 5,000 to 17,531. From 1924 to 1938 one-room schools in the nation decreased from 165,417 to 121,178. The problem of consolidation is closely allied with that of school transportation. (See TRANSPORTATION OF PUPILS.)

The question of what the unit for school organization should be is a moot one. The tendency in recent years has been to stress the community unit as the most desirable one. The second most commonly recommended unit is the county, although there are certain political dangers inherent in making school district boundaries coterminous with those of any political, or civil, subdivision. At the present time there is one state school system (Delaware); twelve states use the county as the school administrative unit; twenty-six are organized on the district plan; and nine follow the town and township plan.

School consolidation generally leads to one or more of the following benefits: (1) a reduction of per-class or per-capita costs, (2) a greater equalization of local tax burdens, (3) a decrease in the number of teachers needed, (4) an increase in the preparation, experience, and tenure of teachers, (5) better educational achievement by pupils, (6) broader curricula, (7) an increase in the instructional time for each pupil or each class, (8) a longer school term, (9) improved attendance, (10) better school plants and equipment, and (11) greater economy and efficiency in the administration and supervision of schools.

Among the most common objections to school consolidation are the following: (1) the necessity for pupil transportation with its attendant expense and difficulties, (2) loss of the one-room school as a community center, (3) construction of new buildings or additions to present buildings, (4) increased tax rates, (5) decreased land values in the district losing its school, (6) greater danger of epidemics of disease among pupils because of the concentrated school population, (7) decrease in attention given individual pupils because of the increase in class size, (8) lessening of cooperation by school patrons, (9) need for better clothing for children to attend a consolidated school, (10) less freedom for the pupil to advance at a rate best suited to his abilities, (11) the possibility

of jealousy among the various communities comprising the consolidated district, and (12) increased danger to children's physical and moral well being because of poorer supervision during the recess periods.

Some of these disadvantages are not necessarily inherent in the process of consolidation. They may result from factors associated with school administration, guidance, teacher personnel, etc., which affect all schools and school systems, regardless of the form of organization or the size of the area served.

W.R.F.

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CONSTANT ERROR. A constant error results when any form of bias operates consistently in a testing situation. Faulty timing of a test, errors in the scoring keys or in the weighting of test parts, and failures to follow instructions for administering a test are among common causes of scores that are consistently higher (or lower) than would be obtained if the test has been properly administered and scored.

J.R.G.

CONSTITUTIONAL PROVISIONS FOR EDUCATION — See UNITED STATES CONSTITUTION AND EDUCATION.

CONSTITUTIONAL TYPES—See TYPOLOGICAL JUDGMENT OF CHARACTER.

CONSTRUCTIVE METHOD (RESEARCH) — See RESEARCH METHODS IN EDUCATION.

CONSUMER EDUCATION. Consumer education aims at making more intelligent and discriminating consumers of goods and services. The increase in the types of goods and services available for purchase, the growing effectiveness of competitive advertising and selling pressures, the relative absence of official or authoritative evaluation of goods

and services—all these factors have led to an appreciation of the need for teaching students how to become discriminating purchasers.

While consumer education in some form has prevailed indirectly in the high schools for many years, it was not until 1929 that definite attention was given to it, and not until 1935 that a considerable number of schools taught it as a specific high school subject. The development of consumer education was given impetus by such spectacular books as those by Chase and Schlink on how the consumer is misled by business and industry. Much of the pioneer work in the development of actual courses in consumer education stemmed from the ardent interest of Henry Harap of the George Peabody School for Teachers. In general, the scope of these courses included the purchase of goods, such as food and clothing; the purchase of services, such as insurance and recreation facilities; and the making of financial arrangements, such as budgeting and installment buying.

In its earlier stages the subject was characterized by strong liberalism and even evangelism. Its introduction was favored by progressive teachers because it served as a means of emancipation from tradition both in its subject matter and in its methodology. Here was a subject of direct and immediate interest to the child, and an excellent basis for gradual improvement in the condition of the masses of people. Many of its sponsors then and now favored the use of direct materials and frowned upon more than occasional use of textbooks. Experimentation and projects in this field are generally preferred by teachers to more formal methods of instruction.

The subject is now suffering from growing pains. There is considerable conflict of opinion as to the subject area in which consumer education should be taught, and each department is making its claims. Probably more actual consumer education is being taught in home economics than in any other subject. The evidence indicates, however, that separate courses in consumer education are taught more frequently by business teachers than by others.

While the subject is far from being one of those most frequently studied in high schools, its influence upon other subjects is

great, for it has caused a consumer reorientation of most other subjects. In secondary schools the emphasis is being placed increasingly upon the consumer values of English, bookkeeping, home-making, shop, foreign language, etc. The subject has also been popular at the collegiate level, especially in the consideration of consumption as an economic phenomenon. H.A.T.

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CONTAGIOUS DISEASES—See COMMUNICABLE DISEASES OF CHILDHOOD.

CONTINGENCY, CORRELATION OF—See CORRELATION (IN STATISTICS.)

CONTINUATION SCHOOL. Between 1918 and 1933 most of the states in the Union operated schools or classes for boys and girls of fourteen to sixteen or eighteen years of age who were employed in manufacturing and industrial pursuits. (Youth in the street trades, such as carrying newspapers, in domestic service, and in agricultural work were not included.) Generally, the aim of the continuation school was to provide a self-inventory and a stimulation of ambition for the employed minor. The schools were usually attended for from four to eight hours per week. When the instruction was of a general educational nature, the schools were known as "general continuation schools." A limited amount of the instruction given—especially to the sixteen to eighteen year old group—was of a trade preparatory nature. Although adjusted academic and vocational studies were provided, the basic functions were guidance and vocational placement.

Since 1933, compulsory continuation schools are no longer common because the minimum entrance age in most industrial states has been raised for workers in industry to sixteen or eighteen years. The New York State Regents Inquiry into the Character and Cost of Public Education recommended in 1938 the complete abandonment of continuation schools. (See VOCATIONAL EDUCATION.)

F.T.S.

CONTINUITY TEST — CONTROVERSIAL QUESTION

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CONTINUITY TEST—See OBJECTIVE TESTS AND EXAMINATIONS.

CONTINUOUS MEASURES. Measurement of traits is regarded as falling into two categories, *continuous* and *discrete*. Discrete measurement is in terms of a real indivisible unit. For example, the numbers of pupils per class can be measured only in whole numbers of pupils. For any measure of such a trait to have meaning it must be interpreted in terms of whole numbers. Continuous measurement, on the other hand, is in terms of units that are infinitely divisible. For example, time can be measured in years, months, days, minutes, seconds, or very small fractions of a second—the accuracy of the measurement being limited only by man's ingenuity. There is inherent in continuous measurement the assumption that greater accuracy is possible. For example, stating a boy's age as eleven years implies that his age is not exactly that; in finer measurement his age would be expressed as eleven years, five months, ten days, etc.

Each continuous measure represents a range of one unit—one of the units of measurement used; there is, therefore, no gap between one continuous measurement and the next possible measurement—the measure "eleven years" begins where "ten years" leaves off. Between measures of height of 61 and 62 inches there are possible such measures as 61.01 inches, 61.02 inches, 61.03 inches, etc. (or even finer measurements). Each discrete measure, on the other hand, represents a point with a gap of one whole unit between it and the next possible measure. Between two such measures as 31 pupils and 32 pupils there is no intervening measure. The smallest possible difference between two continuous measures is infinitesimally small. The smallest possible difference between discrete measures is one whole unit. A further distinction between discrete and continuous measures is that the former are obtained by counting and the latter by measurement.

Statistical values, computed, for instance,

from a distribution of measures, must be expressed in terms that can be interpreted in a valid manner. Thus a mean or a median of discrete data must be interpretable in terms of the discrete unit in order to have meaning. Such a value as "the mean number of pupils per class in the school is 31.2" can be interpreted to mean that "if the total number of pupils in the school were distributed so that there were the same number in all classes, there would be 31 in each class with one extra pupil for every five classes." However, a median number of pupils per class of 31.2 cannot be interpreted in discrete terms.

J.S.O.

CONTRACT PLAN—See DALTON PLAN.

CONTRACTS, TEACHERS' — See TEACHERS' CONTRACTS.

CONTRACTUAL LIABILITY — See LIABILITY.

CONTRIBUTORY NEGLIGENCE — See NEGLIGENCE.

CONTROL GROUP — See. EQUATING GROUPS.

CONTROVERSIAL QUESTION. Three closely interrelated factors lead inevitably to the rise of the problem of controversial questions in education. First, education cannot be carried on in separation from the major social and cultural issues of the group. Hence education becomes inevitably involved in the struggle of factions and ideas. Second, the more education becomes a responsibility of society and its main agency, the state, the greater will be the desire of the forces struggling for domination to use education as an instrument for inculcating their ideas and tendencies into the minds of youth. If these forces are not strong enough to overcome the resistance of oppositional groups, which also will try to get hold of the school, teaching has no unequivocal point of reference but becomes eclectic and often uncertain about its own goals. Naturally a society in transition with no integrating aim or tradition will create more controversial questions than a relatively stable order. Third, modern education tends toward relating the instruction of the pupil more closely to the social environment than the older forms of education. (Preparation for life; learning through ex-

CONVENT SCHOOLS

pefience; *Lebensnaehe*.) Consequently the comfortable aloofness of the older classroom from controversial issues is no longer feasible.

Different forms and conceptions of society will have different standpoints with respect to the treatment of controversial questions in the school. Orthodox societies, both political and spiritual, will tend to exclude it (religious orthodoxy, political absolutism, and totalitarianism). More individualistic, dynamic, and flexible societies will give the school a larger share in the discussion of controversial questions. Whereas the orthodox type carries with it the dangers of rigidity, crystallization, suppression and consequent revolution, the individualistic type is exposed to the peril of relativism, scepticism, and dissolution. The soundest society will be one which is capable of uniting openmindedness to new and controversial issues with firmness in essential ethical convictions. In such a society controversy, instead of leading toward disintegration, will be a means for mutual understanding and for that combination of change and stability, freedom and harmony, without which progress is impossible. (See INDOCTRINATION.) R.U.

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CONVENT SCHOOLS. Institutions conducted by religious orders of cloistered women for the education of girls and young women of all creeds, in keeping with the educational principles of the Catholic Church and the special educational objectives of the communities controlling the schools. Such schools were a direct outgrowth of the monastic movement. Monastic communities of women developed very early and soon became "important centers of culture where the industrial arts were taught, and where books were prized, stored and multiplied." Rules for their conduct were formulated as early as the sixth century. Through the well-balanced nature of the instructional program in medieval institutions, generally including

instruction in reading and writing, spinning, weaving, and embroidery, their contribution to the education of the upper classes was significant and lasting. Many women of talent pursued their studies at higher levels and enriched the literature of the period with prose, drama, and verse of a high order. Perhaps the most notable contribution of the early convent schools was their effect on moral standards. They made it possible for girls and young women to withdraw from the worldly atmosphere of the court or society so as to secure a Christian education under the direction of cultured women. The products of such schools carried back to the court, the home, and society ideals and habits which did much to promote morality, culture, and better social conditions.

The Reformation forced the closing of schools in some European countries, notably in England and Germany, but the missionary program of the Church and the founding of new teaching orders soon opened other fields of service. Wherever cloistered or semi-cloistered communities are serving the Church today, in Europe, Asia, Africa or the Americas, instruction at various levels, elementary, secondary and collegiate, is provided by nuns with the necessary academic and professional training. The programs offered conform with local, regional, or national requirements.

The oldest convent school in the United States is Ursuline Academy in New Orleans, founded in 1727. By 1860 there were more than 200 convent schools. The programs offered during the early and middle nineteenth century included the three R's, religion, sewing, music, French, English grammar, rhetoric, literature, philosophy, history, astronomy, geography, bookkeeping, botany, geology, physiology, and penmanship. Later in the century many schools added instruction in science and mathematics. Emphasis was constantly placed on the development of proper deportment, culture, and Christian character. In a word, Catholic young women were educated "in keeping with the highest ideals of the society of the last century." Towards the end of the century, in large part because of the growing interest in college education for women, many additional subjects were added to the curriculum and elementary was separated from secondary and

higher education. Many institutions organized instruction at the college level, usually as a result of the upward extension of the secondary program. Vocational interests have been widely recognized in recent curricular changes. Programs now provide preparation on a generous scale for the occupations and professions open to women. There are approximately 700 institutions of this type in the United States (1940), mostly offering instruction at the secondary level. (See CATHOLIC EDUCATION.)

F.M.C.

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COOPERATIVE GROUP PLAN. This plan, introduced about 1925 by Dr. James F. Hosis and his associates of Teachers College, Columbia University, sets forth a new form of organization for elementary schools.

The Hosis plan divides the school into several groups. Ideally, five class groups of at least two different consecutive grades would constitute a cooperative group. The total curriculum for these five groups is divided into five different parts, and each of the five teachers is responsible for the teaching of that particular part of the curriculum to the five groups of children from the two or three grades of the school.

The main feature of the plan, the source from which the plan perhaps derives its name, is the organization of the teachers of a school into small cooperative groups, each of which is led by one of its own members, who acts as chairman. Their common interest is the pupils whom they teach. They are brought together, not because they teach the same subject, but because they have the same children. The teachers plan their work cooperatively in order to obtain the maximum of integration in the educative experiences of the children.

The cooperative group plan has been tried in a few schools, but it is probably fair to conclude that up to 1942 this plan has had little influence on the organization of elementary schools in the United States. O.G.J.

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J. R. MCGAUGHY, *An Evaluation of the Elementary School* (Bobbs-Merrill Co., Indianapolis, 1937).

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COOPERATIVE PART-TIME DIVERSIFIED OCCUPATION PLAN.

In large industrial centers, it is feasible to organize cooperative education involving separate groups or classes for each trade or industrial occupation. This is not possible in the smaller cities and in nonindustrial communities. Within the last five or ten years, much progress has been made, especially in the South and Southwest, with a form of cooperative education that is admirably suited to fit young people for the diversified industrial life in those areas. This plan of instruction is called *Cooperative Part-Time Training for Diversified Occupations*. Nothing has stimulated industrial education at the high school level in many states more since the original passage of the Smith-Hughes Act of 1917 than has this form of cooperative education. It differs from cooperative education as developed in the larger cities of the North Atlantic States in that the students making up a class do not follow the same trade or occupation, but follow a variety of skilled occupations. For example, out of a typical class of fifteen students in diversified occupations, three may be employed (on an approximately half-time basis) in garages, two may work for plumbers, three may work for carpenters or builders, two may be learning to become sheet metal workers, one an electrician, one a draftsman, two machinists, and one a toolmaker.

In so far as possible, students are grouped for their "related instruction" on the basis of the occupations they follow. When this is not feasible, it is given on an individual basis. Since the practical or trade skill part of the instruction is given "on the job," the employer supplies materials, tools, machines and other equipment. He also pays the learner a reasonable wage. (See COOPERATIVE EDUCATION.) F.T.S.

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C. E. RAKESTRAW, "Cooperative Part-time Diversified Occupations Program", *Occupations*, XVIII: 403-6, March, 1940.

H. SCHNEIDER, *Education for Industrial Workers* (The World Book Co., Yonkers-on-Hudson, 1915), Chapter X, "The Cooperative Course in Detail."

COOPERATIVE PART-TIME SCHOOL — CORE CURRICULUM

F. T. STRUCK, *Foundations of Industrial Education* (John Wiley and Sons, New York, 1930), ch. 13.

COOPERATIVE PART-TIME SCHOOL. A vocational part-time school or class is one which provides practical and related instruction to youth who are preparing for, or who have entered upon, a vocation of their own choosing. Instruction designed to enlarge the civic or vocational intelligence of the worker may be included. If the instruction is supplemental to the daily employment, it is called *trade extension education*. A special form of it is called *apprenticeship*. If, on the other hand, the instruction is for youth who have not yet entered employment, such instruction is called *trade preparatory training*—it is to prepare persons to enter the vocation.

When a program of training has been set up cooperatively, as for example between a vocational school and a labor union, or between the school and an employer or a group of employers, and especially when approximately half of the time of the school year is given over to training "on the job," then such a training program is properly known as a *cooperative part-time program*. The schools or classes involved become cooperative part-time schools or classes. F.T.S.

COOPERATIVE PURCHASING — See PURCHASING, SCHOOLS.

COOPERATIVE STUDY OF SECONDARY SCHOOL STANDARDS — See SECONDARY SCHOOL STANDARDS, COOPERATIVE STUDY OF.

COORDINATION. The muscular coordinations needed for such activities as standing, walking, jumping, grasping, pulling, throwing, etc. develop gradually and are dependent upon the interaction of growth and maturation with exercise and practice. While there are decided individual differences as to the age when a child can creditably perform a specific motor activity, it is generally true that the cruder activities can be performed earlier than those requiring more refined coordination and exacting adjustment. Manual dexterity develops later than locomotor ability.

Muscular coordination arises out of varied experience and self-guidance, with direct instruction playing a minor role. The provi-

sion of space and apparatus for free play, apparatus suited to the children's level of development, plus encouragement from adults and the example of boys and girls just a little more mature is all that most young children need for the development of adequate coordination.

As a matter of fact, physical activities involve much more than mere muscular coordination. It is the cooperation of sense organs, especially the eyes, and the kinesthetic sense receptors in the muscle tissues, tendons, and joints, with the actions of the muscles and other bodily organs which makes possible the harmonious coalescence of the activity of muscles involved in achieving an objective. In the process of reaching and grasping, for example, the infant learns to perceive distance through his eyes more accurately at the same time that he is learning to reach and grasp with greater precision. (See PERCEPTION.) Although the emphasis in the attainment of motor skill is placed upon the rhythmic action of the muscles, the modification of behavior involves also various sense organs and relations throughout the body. Consequently, in developing coordination through practice it is necessary for the individual to concentrate upon the objective in view, or the whole act, rather than attempt to build up the unified act by attending separately to different movements in the series. When the general pattern of a motor skill has been established, then attention may be profitably turned to detailed difficulties as they arise. In other words, coordination depends upon the feeling or knack developed by the learner through varied trials, although demonstrations and suggestions may contribute, especially when offered by an instructor who is carefully observing the individual's attempts.

W.F.B. and B.B.F.

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C. E. SKINNER and others (eds.), *Readings in Educational Psychology* (Farrar and Rinehart, New York, 1935), ch. 7.

CORE CURRICULUM. The Core Curriculum generally implies a main, basic, or central course, required of all or nearly all

CORPORAL PUNISHMENT

students, in which the topics or problems are selected without regard to subject matter lines. There are two well-defined types of core curricula depending upon the criteria by which the topics or problems are selected. In one the selection by adults of essential matters for pupils to learn dominates the internal organization. This core is sometimes called unified studies (*q.v.*), survey of cultures, culture epochs (*q.v.*), areas-of-living (*q.v.*), social living, and broad-fields (*q.v.*) In the other type the problems grow out of pupil needs and are selected cooperatively by pupils, teachers, and others intimately connected with the learning group. Since this latter core approaches the experience curriculum (*q.v.*) in qualitative learning and democratic management, it is sometimes called the experience or guidance core. Most cores, however, are of the subject-matter type.

The schools have always had a core curriculum under various names and organizations. When the scope was limited, as in early Colonial days, every subject was required of everyone. As the curriculum expanded, the core in the elementary schools became the 3 R's, while the secondary school offering was divided into required and elective subjects. The new emphasis upon the core idea comes from two groups of educators: first, those who want a new essential body of knowledge more in harmony with present needs of students; second, those who want a flexible process of learning rather than a body of knowledge as the operating center. The argument for the new knowledge seems reasonably clear. Advocates of the learning process hold that it is the one aspect of education which is common to all experiences wherever found. The student who consciously controls it has a power in meeting new problems of living which the knowledge core fails to develop. Thus he is able to continue to meet life successfully after his required years in school have been completed. This concept of learning differs markedly from the point of view of teaching which has always dominated knowledge cores. As the process of learning affects the acquisition and use of knowledge, emphasis upon the process will tend to improve the scope, value, and availability of knowledge which the subject teaching lacks.

Theoretically the core should affect all

aspects of the curriculum but in practice this is not true. Pupils may have a subject or experience core for two hours and spend the remainder of the day in learning the traditional subject matter of academic subjects. The areas-of-living core reorganizes the total curriculum more than most others, but the center of organization is knowledge derived from an analysis of adult needs and activities. In practice, this has resulted in the correlation of a few required broad-fields. It is questionable whether any curriculum can have a core unless it be a flexible process of learning whatever is learned. Certainly it cannot be the same body of knowledge for all pupils, not even in exposure, regardless of the quality of learning. In the last analysis, the only real core is in the learnings which each individual accepts to live with and by, now and in the future. And it is the chief function of the school to help him make his selection of learnings as thoughtfully as possible in the light of all available personal and social conditions. (See CURRICULUM.) L.T.H.

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CORPORAL PUNISHMENT. Any punishment applied to the body and producing physical pain is corporal punishment.

History records the extensive use of corporal punishment through the ages as a reflection of a philosophy of education that asked for little more than the child's submission to authority. Although psychologists and educators object to corporal punishment in schools on many grounds, it is still used occasionally today, indicating that we have not yet wholly accepted the point of view that education is a cooperative process in which students and teacher work together to achieve desired goals.

While the school is interested in developing the child's ability to work with others and to adjust himself to the regulations necessitated by the classroom situation, it prefers the kind of pupil adjustment that arises from the child's understanding of his social responsi-

bilities rather than the instant and unquestioning obedience that is prompted only by fear of the switch. Since corporal punishment never deals with the causes of maladjustment or misconduct, it is rarely more than a temporarily effective measure that at best can only control misconduct, but not prevent it. The concomitant effects of corporal punishment have also been deplored because the use of this form of correction makes the classroom a place to be feared.

Although other forms of school punishment are still tolerated even though they may be as cruel and as ineffective as corporal punishment (sarcasm, for example), public and professional opinion is steadily increasing its opposition to the use of corporal punishment. This type of punishment has practically disappeared from modern schools; in fact, many schools have declared its use to be illegal or have prescribed detailed regulations concerning its administration. (See PUNISHMENT.)

C.M.R.

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W. R. SMITH, *Constructive School Discipline* (American Book Co., New York, 1936).

CORPORATION SCHOOL—See COMPANY SCHOOL.

CORRECTIONAL EDUCATION. In modern penology the term *correctional education* is given broad meaning. It describes all of those experiences and procedures which are brought to bear upon an individual incarcerated in a penal institution (reformatory for juveniles or adults, or a prison) for the purpose of giving him the kind of training likely to result in his being more willing and more able to live in a socially acceptable manner during and after incarceration. The extreme modern point of view sees the penal institution as corrective rather than punitive. The moderately modern point of view sees it as corrective and punitive. Hence the wide acceptance of the term "correctional education" instead of older and less meaningful terms such as "reformation," "rehabilitation," and "penal education."

Traditional education in penal institutions follows the usual patterns of philosophy, objectives, and methodology of education elsewhere. But modern correctional education breaks away from tradition in that it

looks at each individual as one who is in need of specialized educational treatment. The theory of modern penology envisions an attempt to discover through study of the whole individual (that is to say, his life history, his physical, mental and emotional makeup) what factors have been causative in his socially unacceptable past and present conduct. As a result of such study and in terms of the individual's probable future, remedial correctional treatment is prescribed. This procedure parallels that employed in the treatment of physical ailments. First, the cause of the ailment is determined and then treatment to remove the cause and cure the ailment is prescribed and applied.

Modern penal treatment is scientific and clinical in its approach. In diagnosis and treatment it directly involves a variety of specialized skills, for example, those of the penologist, physician, psychiatrist, psychologist, sociologist, biologist, criminologist, clergyman, and educator. Indirectly, numerous others are involved. It is the task of correctional education to contribute diagnostically and remedially within its sphere to the treatment process. The contribution is necessarily wide in scope. It embraces nearly all types of learnings. The approach is coordinated toward the particular purpose to be achieved with a given individual. Emphasis in approach will lie wherever indicated. The "teacher" may be anyone who is qualified for a needed approach, for example, a clergyman, a physician, a psychologist, an officer, a vocational instructor, an academic teacher, or some other. Usually, a number of "teachers" are involved, but they all know what the common objective is and what each is to do.

In practice today the theory of modern penology and, therefore, correctional education is more a trend than a reality. All degrees of perfection in practice may be observed ranging from a few gestures to very effective programs. In the correctional institution as elsewhere the success of educational processes depends upon enlightened methods, skillful teachers, and ample supplies and equipment. But here additional burdens are imposed. The very absence of constructive activity (such as purposeful education) results in anti-social education and "crime schools". People without the freedoms to which they are accustomed are emotionally

CORRELATION (CURRICULUM)

disturbed. Idle minds become sluggish or seriously affected by nostalgia. The result, first noticed by penologists many decades ago, was that a person frequently left the penal institution more vicious than when he entered, or suffering from mental deterioration. One of the first attempts to combat this outcome was an effort to introduce "education" which consisted of reading and study of the Bible and solitary contemplation of its teachings and one's own sins and shortcomings. Later, a few of the common school subjects were introduced, and then in 1870 the Elmira Reformatory was established. This institution with its School of Letters, apprentice shops, system of marks, punishments, massages, baths, and other devices, represented a radical departure from any form of penology then in practice. Its founders believed that they had found at last the sure method for successfully accomplishing the "reformation" of offenders against the law. The Elmira plan consisted of a formula which was applied indiscriminately to all. This first reformatory set the pattern for a new movement in penology which spread throughout the world and still remains in the original or a slightly modified form in many of our states as well as in foreign countries.

Modern correctional education in contrast with the original Elmira education is dynamic. It keeps pace with progress in educational philosophy and method as well as with other progress in pertinent scientific fields. It does not apply a formula for correction. On the contrary, it regards each offender as an individual who is different from all of his fellows and as such must receive individual study and treatment for the particular kind of adjustment he must make in his own community.

(See PRISON SCHOOL, REFORMATORY EDUCATION.) W.M.W.

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CORRELATION (CURRICULUM).

Correlation means the teaching and learning of essential parts of the content of subjects or broad fields which have observable relation to a common topic or theme. It is a method of unifying subject matter, but it does not necessarily represent any change in the original requirements of the individual subjects. All forms of revision of the subject curriculum move away from fragmentation toward greater unity in the essential subject matters. Correlation is at the bottom of the list of such movements since much of it is casual and incidental, being confined to the most obvious connections made by a few interested teachers. Some correlation results in greater unity through more consciously planned efforts to locate and define the more subtle relationships existing among subjects. Administrative arrangements are then made to make possible the realization of such designated correlations. Parts of art may be related to home economics for girls or shop work for boys; American literature may be taught in the same year and perhaps by the same teacher as chronological United States history; Dickens' *Tale of Two Cities* may be taught in English literature while pupils are studying the French Revolution in World History. Remedial reading courses which are prevalent in secondary schools frequently draw their materials from the texts used in other courses.

CORRELATION (STATISTICS)

Correlation is the most widely used modification of the traditional subject curriculum. For that reason it is usually designated as a curriculum although at best it can never be more than the introduction of a number of cross strands in already existing, separate and distinct, longitudinally organized bodies of knowledge. It appeals greatly to teachers since no subject loses anything. It finds favor with administrators since it does not challenge the efficiency of the authoritarian organization which is held to be one of the strengths of the traditional curriculum. Since correlation can be and generally is confined to only a relatively few subjects, it can never be a curriculum, for this term usually implies a wider and a more thorough reorganization.

Correlation is frequently confused with fusion (*q.v.*), which reevaluates old subject matter around new unifying centers. Correlated courses are also designated as integrated courses under the assumption that the clearer relationships in the new organization aid the pupil better to unify the materials in his own experiences. This point of view violates one fundamental principle of integration (*q.v.*), namely, that each pupil must break down any organization through which material is presented to him to learn and reorganize the material in terms of his own logic of experience. Thus the more thorough the unification by the teacher the more difficult is the task of the pupil to put it together around his own purposes and values, for knowledge must be functionally acquired if it is to be really and truly acquired. (See CURRICULUM.)

L.T.H.

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CORRELATION (STATISTICS). A coefficient of correlation expresses the degree to which paired items in two arrays of quantitative data vary conjointly. Thus, it has been found that husbands of high I.Q. have, on the average, wives above the mean in intelligence, and husbands of low I.Q. tend to have wives below the mean in intelligence. The degree to which the husbands' and wives' mentalities go together can be ex-

pressed numerically by the coefficient of correlation. This instance illustrates positive correlation. Conversely, students who go to the movies many times a month tend to get lower grades at school than do students who go less frequently. Since a higher score in one trait (movie attendance) is associated with a lower score in the second trait (school grades), this instance illustrates negative correlation.

The size of the coefficient of correlation varies from 0.00 to 1.00 and may be either positive or negative. It is difficult to present any definite rule as to when a coefficient of correlation is high or low since this judgment depends so much on the nature of the data. Thus, a coefficient of correlation of .60 would be low if it represented the correlation between the I.Q.'s derived by two clinical psychologists who tested the same group of children, while a correlation of .60 would be regarded as high if it represented the correlation between children's ability to sing and their scores on an arithmetic test.

Two principal uses are made of a coefficient of correlation. One is to determine the closeness with which two functions vary together, as a basis for educational practices. For example, an administrator may want to know the degree of correlation between intelligence and the ability to learn to read, so that he may judge whether classes which have been selected on the basis of homogeneity in intelligence are also approximately homogenous with reference to their ability to learn to read.

The second use is to predict standings in one function from known standings in a second function correlated with the first. The regression (*q.v.*) equation (which contains the coefficient of correlation or a function of it) may be used to predict the most probable scores of individuals in the dependent function from their known scores in the independent one. Formulas for estimating the average amount of error to be expected may be found in books on educational statistics, but there is no way of knowing how wrong the prediction may be for a given individual except within limits. Consequently, predicting success in school from an intelligence test given at entrance, based upon the correlation coefficient between the intelligence test and school marks is not without its hazards. (See PRE-

CORRELATION (STATISTICS)

DICTION OF SUCCESS.)

Though the degree of relationship between two traits may be regarded as a basis for predicting status in one trait for an individual whose status in the other trait is known, it is incorrect to assume that correlation necessarily implies causation. If the coefficient of correlation between students' scores in algebra and their scores in social studies is high, it does not mean that a student's high score in social studies is attributable to his high score in algebra. The correlation between success in algebra and success in social studies may reflect the fact that success in these subjects has a common cause or common causes, such as intelligence and good study habits.

The size of the coefficient of correlation between two traits is affected by the homogeneity of the samples upon which the correlation coefficient is based. In general, a homogeneous group will yield a lower coefficient of correlation than will a group that is less homogeneous with respect to the traits being measured. Thus, if we weighed all of the 3,500 children under fifteen years of age in an entire city, we should undoubtedly find a high degree of correlation between age and weight, for the older a child is the more does he usually weigh. On the other hand, if we were to weigh only infants who are ten days old or less, we should find a very low degree of correlation between age and weight, for many infants weigh more at birth than do other infants a few days older. It is, therefore, grossly incorrect to interpret the correlation coefficient of age and weight for infants as reflecting the degree of correlation between age and weight for children in general.

Some of the laymen's misinterpretation of correlation coefficients results from this failure to understand that a homogeneous sampling of scores yields a lower correlation coefficient than is found when the sampling is heterogeneous. Thus, in one college which prided itself on the great care with which it selects its freshmen and on the high quality of the academic work, an investigation revealed that the coefficient of correlation between intelligence test scores and success at college was $.54 \pm .03$. Some members of the faculty were disappointed, for they thought the relationship should have been much higher. What they did not realize was that

the student body was so highly selected that even the students whose intelligence test scores were the lowest in the college group would have been among the highest scorers on an intelligence test administered to all young men and women in the country. Had this college admitted all eighteen-year-olds regardless of their intelligence or scholastic status, it would soon have found that the correlation between intelligence and college success is much greater than its present study had indicated.

Varieties of Coefficients of Correlation. There are a number of standard procedures for computing a coefficient of correlation. The basic method, used when the two variables are continuous and measured in terms of quantitative scales, is the *product-moment coefficient* (usually symbolized as r). When one of the variables is described in only two categories and yet those two categories really represent a scale the *bi-serial r* is computed. When both variables have been similarly condensed into two categories, a *tetrachoric r* is computed. When the two sets of values to be correlated are given in terms of rank order, or when the number of observed pairs of values is small and one can readily translate them into rank orders, the *rank-difference coefficient* or *rho coefficient* is commonly computed. When the two variables are measured in terms of attributes (e.g., brown eyes, hazel eyes, and blue eyes) rather than quantitative scores, a *coefficient of contingency* is often computed. In this instance we speak of the *correlation of attributes*.

Most of the procedures mentioned above assume a rectilinear regression (See REGRESSION) between the two variables correlated, in other words, a straight-line relationship or direct proportionality between the two sets of measurements. There are a few instances in educational work, particularly in connection with curves of growth and of decline in abilities, in which the regression is curved or nonlinear. In this type of case a special device known as the *correlation ratio* is employed. The *correlation ratio*, or eta coefficient, is numerically equivalent in range to the ordinary coefficient of correlation and can be interpreted similarly.

The Reliability of Coefficients of Correlation. Like all statistics—for example the mean, the median, or the standard deviation

CORRELATION (STATISTICS)

—the coefficient of correlation must often be computed for practical reasons from a sample rather than from the entire population. The reliability of the coefficient of correlation is usually indicated in terms of its *Probable Error*, which is expressed as a decimal. Thus, a coefficient of correlation which is given as $+.90 \pm .02$ means a positive coefficient of correlation of .90 with a probable error of .02. The probable error of a coefficient of correlation is interpreted as are all probable errors. (See RELIABILITY.) In the instance which has just been given, it is safe to assume that if the true correlation in the population is actually $+.90$, half of the time correlation coefficients in random samples would be between $+.88$ and $+.92$. Unless the correlation coefficient is at least 4.5 times its probable error, we cannot be very confident that even the direction of the correlation will not be changed if other samples are tested. For example, if the correlation coefficient is $+.15 \pm .08$, there is a possibility that some subsequent samples will yield a negative correlation.

Partial Correlation. Partial correlation measures the degree of conjoint variation between two variables when the influence of one or more other variables is eliminated from them both. An example is the correlation between the weight and strength of boys with chronological age held constant. The reason for desiring a partial correlation coefficient in this instance is that both weight and strength increase with age. Therefore, any immediate correlation between measurements of weight and strength among a group of boys ranging several years in age might be due to the common cause—physical maturity. Experimentally, we could determine the correlation between weight and strength for each age separately. This would require the massing of a large amount of data. Instead of following such a cumbersome and sometimes impossible procedure, we can approximate the same result by using a partial correlation formula. In order to employ this formula in the given instance, we must first compute, for the group of boys measured, the coefficients of correlation between age and weight, age and strength, and weight and strength. When only one extraneous variable is held constant we speak of a “*first-order partial r* ” and it is denoted by the symbol $r_{12.3}$, meaning that

we have the correlation between variables X_1 and X_2 with variables X_3 held constant. When two variables are held constant we have a “*second-order partial r* ”, denoted as $r_{12.34}$, and so on for high order partial r 's. It should be said, however, that rarely does the careful investigator employ partial r 's above the first order because of certain risks that the data were not properly sampled and because the intercorrelations themselves are subject to sampling errors which may be cumulative when computations are based upon combinations of them.

Multiple Correlation. Multiple correlation is the correlation between one variable, known as the dependent variable, and two or more other variables (known as independent variables) combined by appropriate weightings that produce the maximum degree of relationship possible between the dependent and the independent variables for the sampling in question. A typical instance is the correlation between some measurement of scholastic achievement (dependent variable) and several predictive indices collectively, such as scholastic-aptitude score, average high school mark, and some measure of interest or motivation. The weights to be assigned to the independent-variable measurements are customarily determined by a process of solving simultaneous equations in which the intercorrelations among all the variables are considered. The multiple coefficient of correlation is symbolized by $R_{1.234 \dots n}$, which means that the dependent variable X_1 is correlated with independent variables X_2, X_3, X_4 , on up to X_n . The multiple R is always higher than the largest correlation between any one independent variable and the dependent variable, provided that no one of the independent variables correlates perfectly with each of the others; and a variable adds little to the extent to which its correlations are high with the other independent variables or low with the dependent one. But because of the usual overlapping among the independent variables, it is found that it rarely pays to include more than three or four independent variables in the battery used to predict the dependent variable.

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CORRELATION OF ABILITIES—See SCHOLASTIC ABILITY.

CORRELATION RATIO—See CORRELATION (STATISTICS).

CORRESPONDENCE TEACHING. Correspondence teaching had its inception in the United States about 1883; and by 1941 the numbers of students enrolled in correspondence study were estimated at 800,000 in private schools and about 150,000 in public institutions (state and endowed universities and teachers colleges). It is claimed that this army of adult students enroll because correspondence teaching (1) meets needs not being met by other adult activities, (2) provides vocational training heretofore left unprovided in high schools and colleges (80 per cent of the student body take correspondence courses for vocational reasons), and (3) provides education for rural groups.

Correspondence teaching is criticized adversely because it (1) reduces the personal element in the teaching process, (2) paves the way in unsupervised institutions for fraud, (3) contributes to the formation of a maladjusted citizenry through allowing men and women to enroll for and fail in courses for which they are unsuited, and (4) absorbs 30 to 80 per cent of fees in selling costs, so that instruction purchased with the remainder is inferior. The last criticism applies more particularly to private institutions than it does to public institutions where fees are generally low and quality of instruction is relatively high. Mortality rates for discontinuing courses before they are completed vary from 12 to 53 per cent in public institutions, to as high as 94 per cent in certain private correspondence schools.

The work of most public institutions is controlled in some measure by the National University Extension Association to which most of these public institutions belong and to whose principles of ethics they subscribe. Some private institutions, realizing the necessity for improving their records, have voluntarily supported the National Home Study

Council originally begun by the Carnegie Corporation to improve correspondence teaching. This Council, a trade association, cooperates with the National University Extension Association and the Federal Trade Commission in establishing regulations for the industry; and develops standards for admission to the Council which provide a minimum of control for private organizations. The Council has approved for membership only about 45 of 350 private schools which conduct correspondence teaching. However, approximately 70 per cent of all students enrolled in private correspondence courses are registered with the 45 approved institutions.

Correspondence schools fall into several categories: public institutions, including state and endowed universities and teachers colleges; the Army, Navy, Marine Corps, Coast Guard, and the Air Corps which have used correspondence courses as a basis for promotion; quasi-public institutions consisting of industrial corporations which use correspondence teaching as a means of improving personnel; and private institutions including (a) industrial concerns which use correspondence courses as a device for selling products and (b) those controlled by individuals, partnerships, or stock companies whose purpose is making a profit from correspondence teaching.

Through such instruments as the Army Institute, which cooperates with correspondence schools in offering courses to men in the armed forces, the United States may see an extension of and improvement in correspondence teaching. Some suggestions for its improvement include a better trained field staff which will bridge the gap between the instructor and the student and between the student and his ambitions, adaptation of course materials to individual needs through a series of researches on correspondence study, and a more adequate development of adult schools and extension divisions so that correspondence schools may be relieved of offering courses unsuited to their medium.

G.A.W.

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COST ACCOUNTING — COUNCILS OF LEARNED SOCIETIES

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COST ACCOUNTING — See FINANCE, SCHOOL.

COST OF PUBLIC EDUCATION—See FINANCE, SCHOOL.

COST OF SCHOOL BUILDINGS—See BUILDINGS, SCHOOL.

COSTA RICA, EDUCATION IN—See CENTRAL AMERICA, EDUCATION IN.

COUNCIL — See STUDENT COUNCIL; TEACHERS' COUNCIL.

COUNCIL, TEACHERS'. A teachers' council is a group of teachers or teacher representatives organized for the purpose of participating in the determination of educational policies of a school or a school system. The members of the council usually are elected by the teaching staff although they are occasionally appointed by the superintendent or the principal.

Although organized teacher participation has legal status in very few cities, it is a widespread city school practice which is not confined to any one section of the country or to cities of any particular size. In some cases the council consists of principals chosen by superintendents. Sometimes teachers are chosen by grades or departments, or elected at large.

While authorities generally advocate teachers' councils, a clear recognition of the council's functions is deemed essential. Discrimination between sharing in planning and assuming the responsibility for administration should be made. The principle of single-headed administration in the effective coordination of all the units of school organization is regarded as being as important as the principle of teacher participation.

The purposes set up by teachers' councils include such objectives as raising the standards of the teaching profession; improving conditions, especially financial conditions, under which teachers work; having teachers take a larger part in community affairs; con-

sulting with the school authorities on general educational matters pertaining to policies and programs; and setting up an agency which represents the teachers in the administration of the school. Nearly all phases of administration have been touched upon by these councils. The list of their achievements includes making courses of study, getting teacher-retirement laws adopted, preparing new salary schedules, revising rules and regulations of the school board, adopting teacher-rating plans, helping raise special school taxes, and consulting the superintendent concerning many school problems.

Other administrative functions in which teachers and teachers' councils participate efficiently are selecting textbooks, disciplining pupils, arranging for extension courses, handling truants and delinquents, making daily programs, making the school calendar, advancing and promoting pupils, and serving on special administrative committees. Thus, teachers participate in some functions to the extent of assuming full authority, as in making the daily schedule, while in other matters, as in preparing salary schedules, their participation is limited to making suggestions.

D.H.C. and A.R.A.

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COUNCILS OF LEARNED AND PROFESSIONAL SOCIETIES. There are some two thousand learned and professional societies, associations, and councils that act as clearing houses for their members. Federations of associations having common interests usually refer to themselves as councils of specified learned or professional societies.

The four leading councils that directly affect the activities of educators and research workers are, in the order of establishment, the National Research Council, the American Council on Education, the American Council of Learned Societies, and the Social Science Research Council. These councils are devoted to coordinating and furthering the broader

COUNCILS OF LEARNED AND PROFESSIONAL SOCIETIES

interests of the constituent societies. They sponsor conferences and exploratory investigations conducted by planning groups from constituent and nonconstituent societies which seek to clarify issues of national importance in their field. They aid in the selection and encouragement of appropriate groups of scholars, whether or not they are members of constituent societies, to study pressing problems likely to aid in resolving issues of general concern. They act as clearing houses to study, recommend, and sponsor approved research proposals of members of the constituent societies and of small groups that often include scholars from other disciplines. The councils act for these groups in securing financial support for approved projects from business and industry, from philanthropic foundations, and from governmental agencies. They also act for the fund-granting groups in giving administrative direction and supervision to some of the projects. While these characterizations are not equally applicable to the four councils they do, in general, indicate the ways in which councils of learned and professional societies work as agents in mobilizing and focusing the energies and abilities of American scholars for advancing and disseminating knowledge.

Certain officers of the four councils meet monthly to discuss problems common to their work. Through these meetings and through the work of joint committees, the councils are able to coordinate and integrate their several undertakings.

The National Research Council was organized in 1916, with the encouragement of President Woodrow Wilson, to further national security in a world at war. Until 1919 it was a committee of the National Academy of Sciences, an agency organized in 1863 to assist the government in another war crisis. During World War I the Council worked to coordinate the country's nongovernmental scientific and technical resources and to center them on the needs of war agencies. Early in 1919 the Academy, in keeping with President Wilson's executive order, reorganized the Council on a permanent cooperative basis. It now functions through seven divisions of science and technology, a division on educational relations, and a division on relationships with international scientific organizations. The divisions of science and technology

include the Physical Sciences, Engineering and Industrial Research, Chemistry and Chemical Technology, Geology and Geography, the Medical Sciences, Biology and Agriculture, and Anthropology and Psychology.

Approximately 85 scientific and professional societies are affiliated with the Council. Their designated representatives, together with members-at-large selected by each division, constitute the working membership of the seven operating divisions. These representatives, plus an executive governing board of about 45 members, give the Council a total membership of some 290 persons. The 135 administrative and technical committees, through which the Council conducts most of its operations, actively enlist an additional 900 scientific men in their undertakings.

Financial support for war research projects which the Council arranges to be carried on by other agencies comes largely from the Federal government. The Carnegie Corporation gave the Academy \$5,000,000 to be used by the Council, of which about one-third is invested in a headquarters building and two-thirds in income producing endowment. Current research projects aggregating some \$800,000 per year are supported by specific grants from business and industry and by the subventions of philanthropic foundations. Another important undertaking of the Council has been the administration of some 1,400 postdoctoral fellowships involving an annual expenditure of approximately \$280,000. Funds for this work have been provided by the Rockefeller Foundation.

The American Council on Education was organized in January, 1918, by a representative group of educational associations. The initial purpose was to place the resources of educational institutions at the disposal of the Federal government for winning World War I, and for meeting education's responsibilities for postwar reconstruction. The Council has continued as the leading voluntary agency for co-ordinating American educational efforts through times of peace, depression, and war.

Organizations rather than individuals form the membership in the council, and are classified as constituent, institutional, and associate members. In 1942 there were 48 constituent members—national, educational organizations; 524 institutional members—colleges

COUNCILS OF LEARNED AND PROFESSIONAL SOCIETIES

and public schools; and 48 associate members—organizations having marginal interests in the Council's work. Associate members do not vote at the annual meetings of the Council; institutional members are allowed one vote, but no action is valid unless it is supported by a majority of the constituent members, each of which is allowed three votes. Responsibility for policy decisions is delegated to a nine-man executive committee which supervises administrative matters, and to a thirteen-man problems and plans committee which initiates and recommends research and other major activities.

Among the major projects of the Council during the 1930 decade were the work of the American Youth Commission, the Commission on Teacher Education, the Motion Picture Project, the Cooperative Study in General Education, the Financial Advisory Service, and the Cooperative Test Service. Other important committees are directing research or implementation studies in the relations of higher education to the Federal government, student personnel, measurement, modern languages, educational finance, accrediting procedures, school plants, educational surveys, and international relations.

Aside from receipts for annual dues of \$100 for constituent members, \$50 for institutional members, and \$10 for associate members, the Council's operating budget, which in 1942-43 was \$98,500, is derived largely from philanthropic sources. Its special projects budget, which in 1942-43 was \$670,000, is made up mostly of foundation grants, the bulk of which came from the Rockefeller and the Carnegie philanthropic agencies.

The American Council of Learned Societies is a federation of the twenty-three principal national societies devoted to the humanities and the humanistic aspects of the social sciences. These organizations, which range in age from the American Philosophical Society to the College Art Association of America, have a total membership of approximately 28,500 scholars.

The immediate occasion for establishing the Council in 1919 was to provide an organization competent to represent American scholars in the newly formed Union Académique Internationale, a world federation of national academies and councils interested in cooperative research and publication in the

humanities and social sciences. The Council operates through annual meetings to which each of the twenty-three constituent members may send two voting representatives. The annual meeting elects officers, authorizes the budget, and passes on matters of major policy. The executive committee appoints the Director of the Council, appoints committees, and acts for the Council between meetings. The operating committees are concerned with planning, implementation, project administration, emergency services, and advisory board work.

The allocation by projects of the \$695,586 in the 1941-42 budget provides an analysis of the Council's fields and categories of activity: general support and administration, \$47,635; grants-in-aid of individual research, \$14,271; grants-in-aid of publication, \$69,892; fellowships and other study aids, \$17,300; planning and developing studies in Far Eastern, Latin American, and miscellaneous fields, \$105,009; microfilming and similar research, \$128,046; concluding such major projects as Dictionary of American Biography and the Linguistic Atlas, \$33,883; conducting emergency activities, chiefly for the Federal government, including intensive language instruction, \$279,550. Funds for the budget came from the following sources: membership fees, \$835; interest on invested funds, \$1,800; sale of publications, \$11,161; individual and institutional gifts, \$10,317; Federal government, \$189,150; philanthropic foundations, \$482,323.

The Social Science Research Council was organized in 1923 to advance the scientific study of human society. The seven constituent societies that hold membership in the Council are used as means to this end. They are the American Anthropological Association, the American Economic Association, the American Historical Association, the American Political Science Association, the American Psychological Association, the American Sociological Society, and the American Statistical Association. From the beginning, the Council has concerned itself with the interests of all scholars working on social subjects, whether they were members of constituent societies or from disciplines outside the social science fields.

Each constituent member has three representatives on the Council. This group of 21

COUNTY SCHOOL SYSTEM

persons selects 9 other representatives-at-large, and the 30 persons constitute the members of the corporation and also its board of directors. The Council meets twice a year and has an executive committee that exercises all of its powers between meetings. Virtually all business clears through a committee on problems and policy, most of whose members are on the board of directors, before going to the executive committee or to the whole Council. The problems and policy committee is assisted by some twenty advisory committees and a small central staff. One assistant to the executive director of the Council is chiefly responsible for the administration of fellowships and grants-in-aid for small individual research projects.

During the decade 1923-33, grants to the Council aggregated \$4,198,000—all from philanthropic foundations, with the exception of \$80,000 received from individual donors. The major objects for which these funds were available indicate the nature of the work of the Council. In round numbers these are: general administration, \$735,000; fellowships, \$992,000; Social Science Abstracts, \$500,000; grants-in-aid, \$115,000; committees, conferences, and planning, \$395,000; special projects, \$486,000; and general projects, \$975,000. The special and general projects represent such undertakings as improving research and teaching in agricultural economics and rural sociology, population and regional studies, and a series of studies in public administration, crime, family, cultural areas, Latin-America, economic history, personality and culture, social adjustment, and social security. E.V.H.

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COUNTY SCHOOL SYSTEM. A county school system may be conceived as the

school organization embracing the territorial and civil limits of a county. It does not follow, however, that all schools are under a single county administration. A distinction must be made between the county as the basic administrative unit and the county as an intermediate unit. Under the former type of organization, all the schools, with the exception of certain independent districts in some states, are under one county board of education and one county administration. This is known as the county unit plan of organization. Under the latter form of organization, the county is an intermediate unit between the local unit,—district, town, or township,—and the state. The two forms of county school organizations are quite different in structure and function.

County Unit System. In the twelve states in which the county is the basic unit, there is a county board of education, a county superintendent appointed by the board, and teaching and supervisory staffs for all the schools in the county, except certain independent districts. Chamberlain and Meece¹ show that the county unit plan of organization is most completely developed in Louisiana, Maryland, and West Virginia. In the other nine states—Alabama, Florida, Georgia, Kentucky, New Mexico, North Carolina, Tennessee, Utah and Virginia—the organization may be described as semi-county systems, for the reason that the local districts retain some educational function and not all the schools are under the county unit organization.

In the county unit system, the county administration touches directly the beneficiaries—parents and pupils of the local communities—and may, therefore be considered as the local school system. The administration of such a system is very similar, if not identical in type, to that of a city school system. The county board and the county superintendent and his staff carry on all the functions of control, administration, and supervision in the schools of the county.

Intermediate County System. In twenty-eight states the county is an intermediate unit between the district, town, or township on the one hand and the state on the other. In these states the county school system varies greatly in structure and function, but in no case is it as thoroughly organized as in the

county unit states. In most of these states there is a county superintendent, most frequently elected by popular vote, and in some cases a county board of education. The functions of the county superintendent and county board vary from general supervision of the school but with no real authority, to fairly definite assignments of administrative and supervisory functions. There is a tendency in some of these states to shift authority from the district officials to the county officials, thus giving the county school system a more important place in the educational structure than it has had in the past.

County Aid for Education. In both district system and county unit states, the county is frequently a source of public school funds. Such county funds are usually derived from taxation of the property of the county. Mort and Reusser³ show that in 1936 there were thirty-three states which made use of the county as a source of school funds. The proportion of school income derived from county sources varied greatly, ranging from 0.3 per cent in Michigan to 57.6 per cent in Tennessee. The average for the thirty-three states was 20.6 per cent, but the proportion of school income from the counties in the entire United States amounted to only 6.93 per cent.³ (See STATE AID; SUPPORT OF EDUCATION.) W.C.R.

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COURSE OF STUDY — See CURRICULUM.

COURT, STUDENT — See STUDENT COUNCIL.

CRAFTS. *Crafts* refers to creative and productive activities accomplished by hand sometimes with the aid of simple tools or machines. *Handcraft* is also used to refer to crafts and is generally preferred to *handi-*

craft, which is now thought to convey an irrelevant implication. Tomlinson believes that the word "craft" should be understood to refer to a piece of workmanship that has some claim to beauty, and that it can be associated only with the craftsman's actual production—the work of his own hands.

Craft refers, therefore, to the transformation of materials into art form. In art education the transforming of materials is accomplished not so much for the acquisition of skill as for the sake of creative expression. Handcraft is included in the art course of study for this æsthetic purpose and because experience with materials gives the student an understanding of the ways in which they are used in industry.

The following crafts, frequently taught in elementary and secondary schools, suggest the kinds of activities that are richest in educational possibilities and implications: modeling, pottery making, plaster working, cement and concrete working, carving, bookmaking, costume-making, toy-making, printing, wood-working, textile weaving, metal working, and photography.

Craft work may grow out of the children's experiences in the art period, in other subject areas, or even in their out-of-work life. In any case, the crafts may and often do become the center of interest in the entire school curriculum and may at such times receive major emphasis. L.L.W.

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CREATIVE EDUCATION. Creative education is the name given to the training which first finds and then preserves and strengthens the native artistry in each of us. It places emphasis on the education of individuality; it searches, therefore, for gifts of self-expression, gives them both ready reception and necessary exercise in a favoring environment, and offers also the professional direction to insure the full and normal development for a strong individuality adjusted to effective social living.

In youth education the creative approach is

CREATIVE EDUCATION

based upon several assumptions: that the young are naturally—but not always openly—creative, inventive, individualistic; that, since they are little conditioned by traditional thinking and feeling, they are curious about truth and eager to explore it; that if permitted, the young are daring and active in recording individual responses; further, that they become enthusiastic workers on projects self-conceived or accepted wholly as worthy—in other words, that youth begins by being a unique and capable interpreter of life and must be treated and respected as such.

This is the artist's equipment whatever the medium, and the scientist's also, the possession of a stubborn respect for one's individual interpretation of what is seen, felt, thought, and desired. It arises out of that enduring stuff of personality possessed by each of us which distinguishes us, indeed, from every other human creature until, as the years go by, group pressure and conventional living force us into the common mould. Creative education, however, presents the view that this distinguishing individuality, the creative spirit, never really dies but may be rescued at any age and reinstated into its rightful place of control; it affirms also that when neglected, misjudged, or mismanaged, the creative spirit may harden into dark and evil practices—which makes creative education imperative, especially in the earlier years—but we have abundant evidence that fundamentally it prefers the good and may be led by friendly nurturing along the path of truth and light.

That path to the recovering and strengthening of the better creative personality, whether for youth or for adult, is through natural and enjoyable self-expression. This may take a thousand varied forms: writing and the arts, story telling and the recounting of vivid experience, dramatic expression, the interpretive dance, free discussion, conversation—a long neglected art—imagining, planning, thinking—one of the highest of the arts—inventing, constructing, exploration and research.

Outstanding in the method of teaching is a good reception for every offering however crude or however slow in developing, provided that it is a decent and sincere expression of individuality. The professional guide would know that at this point the urge to

create is more important than the product, that the urge, indeed, is more important than the pace. He would know also that when strong interest in self-expression is kept alive among the young over a long period of time, there is a marked advance in social adjustment: posture and movement become noticeably more mature, speech rapidly approaches adult standards of communication, and group behavior takes on a closer resemblance to the code of well-bred adults.

To meet youth on this level of understanding, creative education demands leaders who not only comprehend the sources and uses of the creative urge but also those who have never lost touch with their own unique creative spirit. Continuous experience as a creative individual is the qualification supreme for those who hope to guide creative youth.

A further assumption of creative education is that self-expression under professional guidance is not only a form of learning—the modern phrase is, "We learn by doing"—but also that it offers the essential exercise for the healthy growth of taste. Higher discriminations and appreciations are notable outcomes of guided creative effort.

Heretofore in the non-quantitative matters of the spirit, measures of the value of method or of outcome have never been wholly dependable. However, we now have significant proof of the effectiveness of creative procedures through the long researches of J. Wayne Wrightstone and his group working under grants from the General Education Board and the Works Progress Administration. (See his *Appraisal of Newer Elementary School Practices*, 1935, and his *Appraisal of Experimental High School Practices*, 1936, Teachers College, New York.) Students of conventional schools and students of experimental schools, in strictly matched pairs, were tested in information, school skills, organization of material—all the types of ability that could be considered even remotely a product of school study.

In the conventional schools which the Wrightstone group examined, the course was kept to the curriculum and the single text book; all the members of the class studied the same lessons; recitations were heard and quizzes were given—the usual procedure of traditional learning. In the experimental classes, however, there would be a dozen text

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books and a library to draw from; the course ranged far in and out of the boundaries of a fixed curriculum; group and individual projects replaced the assigned lesson; discussion took the place of the recitation; and drawing, graph, poem, play, and story were accepted as a welcome sign of the outpouring of strong interest. Thus the creative spirit was openly invited to suggest, fabricate, invent, explore, and adventure in learning.

In the Wrightstone tests the schools that gave full opportunity for creative self-expression win on practically every count. Their students recalled more "facts" although they had "studied" less; they knew better how to find needed data; they organized their material better; and by test in every subject of study, including biology, chemistry, physics, algebra, geometry and Latin, they were more skilled than their conventional fellows who had labored without the fun and the rich excitement of creative learning. In the elementary schools, similarly tested, the children who had been taught by project, environmental explorations, and healthy self-expression were never outclassed, not even in the so-called fundamentals.

The creative approach to learning, which is an encouragement of initiative in thinking, feeling, and in written, oral, graphic, and constructive self-expression, is now an obvious characteristic of elementary education in the United States, and it is rapidly becoming a noticeable feature of secondary education. An outstanding example of the latter may be found in Wilford M. Aiken's *The Story of The Eight-Year Study* and the four other volumes of *Adventures in American Education* (Harper's, 1942). Here is the story of how students and teachers working together reexamined critically the objectives of secondary school instruction, formulated new procedures, reshaped content to meet the needs of today and tomorrow, and, through free use of the native gifts of initiative, judgment, and imagination, created a new and measurably superior instrument of education for high school youth.

Both partisans and critics of the European and American "activity school," of which creative education is a natural offspring, seem often to suggest an irreconcilable conflict between traditional learning and an education aimed primarily to develop independent,

creative personalities. Creative education, however, is simply another method of learning; it does not seek either to oppose or to supersede instruction in factual knowledge but, rather, it offers an additional, and more effective, approach. When guidance in self-expression is at its best, for example, the demand for factual instruction is often greater than the supply. It takes possession of the learner and sets him ranging far and wide; research begins, even in the primary grades; libraries and neighboring institutions are probed; friends and family are relentlessly interrogated for assistance; and often nearly all the waking hours of the student are given over to the shaping and perfecting of the idea or thing which is the eventual product of creative effort and desire. The significant contribution of creative education is that it has put the tools of learning into the willing hands of youth. H.M.

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CREDIT. Credit is a quantitative measure of the work done by a student in high school or in college. Credit has been expressed in a variety of units. Basic to all these units is the *unit*, which has been used for years in high schools and which refers to a school subject taken for a year and meeting five times a week. Upon the basis of taking four subjects each year for four years, the pupil secures 16 units of credit; this has been a commonly accepted basis for graduation from high school. The term *credit* refers, frequently, to a subject taken for half a year and meeting five times weekly; high school graduation would require 32 *credits* and thus two *credits* equal one *unit*.

Colleges express credit in terms of hours. The *semester hour* of credit is secured by taking a subject that meets once a week for a semester; if it meets five days each week for

CREDIT

a semester, it carries 5 semester hours of credit; 5 semester hours are, therefore, the equivalent of a *credit* as defined above. Upon the basis of carrying three subjects meetings five days each week, or five subjects meeting three days each week for each of the four years in college, the student earns 120 semester hours, the typical requirement for graduation. Colleges and universities that operate upon a quarterly basis use the *quarter hour* instead of the *semester hour* and thus 45 quarter hours instead of 30 semester hours will be secured each year; 180 quarter hours, therefore, would be required generally for graduation. Because of specific course requirements, the total number of semester or quarter hours required for a degree are generally greater than 120 and 180 respectively. Two semester hours are the equivalent of 3 quarter hours.

The matter of equivalence of credits is being severely criticized. It is claimed that no two semester hours are the equivalent of any other two semester hours and that, therefore, it is nonsense to speak of two semester hours as being equal to three quarter hours. Critics claim that these units fail to measure growth and therefore are valueless; they insist that we must have some means of determining what effect the course has had upon the student. Does the student have useful information? Is he able to use this information? Has he related this information to his previous and other concurrent experiences? In other words, has growth taken place? The critics say that in theory we accept growth as a goal of education but that in practice we are content with allowing the student to pile up credits. It must be recognized that credits tell a limited story; they tell the amount of time spent in classes in which the student did at least the minimum of work demanded for the granting of credit. That minimum might have been no more than regular class attendance.

Four attacks are being made upon the problem of equivalence of credit (1) Certain colleges give weighted credit in terms of the quality of the work done. Thus, work of *A* quality may receive more than regular credit, whereas work of *D* quality receives less than regular credit toward graduation. (2) Other colleges require a certain average quality of performance such as an average

of *C*, as well as the required number of credit hours. (3) Some authorities are urging the abandonment of the credit system and the adoption of a comprehensive and lengthy examination requirement, both written and oral, that would show more accurately the effect of schooling upon the individual. (4) The Eight Year Study of the Progressive Education Association (*g.v.*) points in the direction of abandoning grades and credits for courses, and of providing experiences, broad in scope, that are evaluated constantly during the student's school life.

What finally becomes accepted practice with reference to describing what a pupil has done during the period he spends in a given school will affect greatly the whole problem of the evaluation and transfer of credit. Present practices in this respect tend to be too routine. Standards are set and rules applied. Where certain schools are on the approved list, students are transferred without question. In some instances a rule automatically reduces the amount of transfer credit allowed. In other instances, all transfer credit below a certain quality (grade) level is denied. Such practices as these ease the administrative problems created by students who transfer from one institution to another, but they assume a nonexistent universal equivalence of credit.

Good admission practice considers at least the following procedures: ". . . adequate information should be at hand regarding the standards of institutions previously attended, supplemented by careful studies of the success or failure of other transfers from the same institutions; and as much information as possible should be obtained about the individual student himself and his reasons for transferring [from another institution]."

A.O.H.

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CREDIT HOUR COST—See FINANCE, SCHOOL.

CREDIT UNION—See LOAN FUNDS.

CRETIN—See MENTAL DEFICIENCY.

CRIPPLED CHILDREN—See ORTHOPEDIC DEFECTIVES, EDUCATION OF.

CRITIC TEACHER. A critic teacher is usually regarded as a regular teacher who has special responsibility for the supervision of one or more student teachers, apprentice teachers, or internes who are assigned to the school of the critic teacher. Sometimes the critic teacher is responsible to both the teacher training institution and the school system; under another plan the critic teacher is virtually classified as a supervisor with little or no regular teaching responsibility. (See STUDENT TEACHING; TEACHER EDUCATION.) R.F.B.

CRITICAL ATTITUDE. A critical attitude distinguishes the educated from the uneducated man. It also distinguishes advanced from primitive civilizations. Whereas the first fosters critical thinking, the latter generally consider critical scrutiny into the causes of events to be sacrilege. Signs of such an attitude can be found even today; many people are reluctant to make a critical examination of their own habits, customs, and mores.

But it would be one-sided to consider a certain degree of distrust in criticism as a sign only of superstition, of laziness, or of a tendency of those in power to keep a state of society, profitable to them, stable. This distrust springs sometimes from the observation that a critical attitude alone, without being complemented by constructive ideas, and corresponding action, may create scepticism and cynicism and be more disintegrating than productive. It is, furthermore, often easier and less courageous, to criticize than to believe and do something. Hence a person as well as society in which criticism prevails over faith is as much in peril as one in which criticism is not dared or forbidden.

Education, therefore, must help a child to build up so much confidence in his own self and in the value of life that a critical attitude, which must also be evoked, does not disintegrate his personality, but helps him in the search for truth and in the development of

well examined and voluntarily acknowledged loyalties. Here lies one of the most responsible and subtle tasks of the educator, for which no recipe can be given. It requires on the part of the educator most of all personal experience, psychological insight, and a mature philosophy of life. R.U.

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CRITICAL SCORE—See PREDICTION OF SUCCESS.

CROSS-EDUCATION—See TRANSFER OF LEARNING.

CRUDE SCORE—See SCORES, CONVERSION OF.

CUBA, EDUCATION IN—See CENTRAL AMERICA, EDUCATION IN.

CULTURAL RELATIONS, DIVISION OF (U. S. Department of State). The Division of Cultural Relations of the Department of State seeks to develop between the United States and foreign peoples that reciprocal understanding essential to harmonious political relationship and to the most effective cooperation in peace and war. Its principal objectives are improved mutual understanding; the removal of barriers to cultural intercourse; and the promotion of a free interchange of thought and achievements through scientific, educational and technical advancement, the arts and the press, motion pictures and radio, and visits of leaders in the various fields of knowledge. The creation of the Division, in July 1938, followed by slightly more than one year the ratification by our Government of the first official step toward an improved mutual cultural understanding among the peoples of this Hemisphere; namely, the Convention for the Promotion of Inter-American Cultural Relations, agreed to at Buenos Aires in 1936.

In 1938 an Interdepartmental Committee on Cooperation with the American Republics was also created in Washington. This Committee was established at the instance of the President to examine the subject of cooperation with the other American republics, and to prepare a concrete program for rendering

CULTURAL RELATIONS, DIVISION OF

closer and more effective the relationships between our people and their neighbors in the other American countries.

A separate section, originally set up in the Division of the American Republics of the Department of State to handle the administrative details connected with the work of the Interdepartmental Committee, has been transferred to the Division of Cultural Relations. This section also handles the loan of civilian experts and technicians from United States Government agencies to assist the Governments of the other American republics at their specific request. Such assistance has ranged from improvements in immigration procedure, customs tariffs, and statistics, to matters of commercial policy, taxation, monetary problems, fishery research, boat operation and child welfare.

The work of the Division of Cultural Relations in general is not geographically restricted to this hemisphere. The Division is carrying on a comprehensive cultural program in China, for instance; and is furthering cultural relations in many regions of Asia, Africa, and Europe. However, especial emphasis has been laid in the important field of inter-American relations.

The principal activities of the Department of State through the Division of Cultural Relations are as follows:

1. The travel grant program for persons of influence in the professions, education, arts, and sciences, which aims at a diffusion of understanding and mutual knowledge between the Americas through the establishment of personal relations between intellectual and scientific leaders. The constructive results cannot be immediately apparent at the start since they depend on a gradual dissemination of ideas among the most influential persons and groups in each of the countries represented. It is hoped, however, that through a cumulative process of friendly contacts any existing barriers of cultural isolation will be reduced.

2. Travel grants to professors, to satisfy requests from universities in other countries for the services of professors from the United States, and vice versa. The United States Office of Education, with which the Division cooperates closely, has official responsibility for handling negotiations regarding professor and student exchanges at this end.

3. Travel grants to students to overcome

one of the principal obstacles to a larger flow of students between the United States and the other American republics—the cost of travel. These grants are awarded to supplement fellowships or scholarships granted by universities which afford the most liberal treatment as regards scholarships or fellowships.

4. The administration of the Convention for the Promotion of Inter-American Cultural Relations, providing for a token exchange of students and professors among the ratifying countries. Fifteen of the twenty-one American republics have ratified the convention, and over seventy awards have been made since January 1940.

5. Cooperation with the cultural institutes established in the other American republics, principally by nationals of those countries, to promote closer cultural relations with the United States. The cultural institutes are located in the principal cities of the other American republics and constitute important local centers of intellectual interchange. In the light of recent international developments, these cultural institutes are being strengthened by cooperation and some financial assistance with funds furnished by the Coordinator of Inter-American Affairs. Most of them now provide sponsorship of radio programs, concerts, lectures, and exhibits; engage in the organized teaching of English, and, in some cases, of Spanish and Portuguese to resident Americans; maintain a library of United States books and magazines; offer hospitality to visiting citizens of the United States; aid in the selection of students for travel and study in the United States; publish bulletins of activities; and advise United States students working in the other American republics.

6. The interchange of books and publications between the United States and other countries.

7. The widespread distribution of suitable educational and documentary motion pictures—a program of growing importance and of great value in reaching large groups of people.

8. In the field of radio, cooperation with the international broadcasting companies on cultural programs; cooperation with national and other broadcasting companies and institutions in the United States on programs about other countries; and cooperation with

Government agencies in the preparation and planning of cultural radio programs and projects.

9. Supervision of the cultural relations officers recently appointed to many of our diplomatic missions. These officers are members of the Auxiliary Foreign Service and their primary function is to assist the head of the mission in matters of cultural significance and to keep the Department of State informed of local developments in the cultural field.

C.A.T.

CULTURE-EPOCH THEORY. The early educational psychologists believed that the human race in its development has passed through certain stages or periods which the unfolding life of the individual repeats, both physically and mentally. This theory, as applied to mental development, was designated by the Herbartians as the "culture-epoch theory," and by the biologists, in its application to physical development, as the "recapitulation theory." The culture-epoch theory was accepted and elaborated upon by G. Stanley Hall as a basic principle of educational method. Hall was firmly convinced that "ontogeny repeats phylogeny" (the development of the individual recapitulates the development of the race) in the mental life as well as the physical. The teacher must discover, through the study of anthropology and genetic psychology, the stages in the mental development of mankind, and then so construct the curriculum and so build methods that the growth of the child will follow a natural order of development. He urged educators to "develop nature's first intention and fulfill the law of nascent periods, or else not only no good, but great harm, may be done." These nascent stages or periods were the times at which the child was ready to assimilate new types of materials because of changes in his nature. Thus in the first grade, when the child is in the savage state, he should be devoting his time to a study of the American Indian so intensively that savage life is reconstructed with reasonable completeness. In the second grade, when the child has passed into the nomadic stage, pastoral life must be the theme; the reading, music, oral discussions, manual activities, and the number work must now concern themselves with the activities of the nomad. Year by year, the child comes closer to the age in which he must

live, (the simple agricultural stage to the simple handicraft stage to the modern complex industrial and commercial age). By retracing the stages of social development, the curriculum unfolds itself in complete harmony with the child who is, by his very nature, taking the same path in his own development.

The culture-epoch theory was applied particularly by teachers of elementary-school history in the organization of the history curriculum. This theory has been largely rejected because of the findings of more recent psychological studies and investigations. Give the child of seven a choice between two toys, an oxcart and an airplane, and he will most likely not choose the oxcart, for which the culture-epoch theory would claim he had a natural affinity.

E.H.W.

CUMULATIVE LEAVE PLAN — See SICK LEAVE.

CUMULATIVE RECORDS—See RECORDS AND REPORTS.

CURRENT EVENTS, TEACHING OF —See SOCIAL STUDIES, TEACHING OF.

CURRENT WORLD AFFAIRS, INSTITUTE OF—See SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

CURRICULUM. Theoretically, and more and more in practice, the term *curriculum* is used to mean the students' total learning activities or experiences that take place under the direction of the school. This point of view, coming rapidly to the front during these past few years—an era of intensive school modernization in this country—stands in marked contrast to the original conception of the curriculum, one which limited the term to the particular program of studies that a student followed in the school.

This broadening of the term has come about naturally to serve the educator's emerging appreciations that child growth is a total process rather than merely a mental process, that the whole school program rather than just the classroom procedure holds these growth possibilities, and that people learn through active participation rather than through passive assimilation of subject content. As long as assign-study-recite was an accepted formula for the greater part of child development, the curriculum could be

CURRICULUM

conceived as those courses or subjects that were lined up for the student to take; but as soon as the theory of mental discipline was discarded and the belief in "whole child" learning began to be realized in practice, the curriculum became as broad as the total program of activities that were to serve the child while under the guidance of the school.

As long as the classroom program and the curriculum were accepted as somewhat synonymous, then the school used the term *extracurricular activities* to designate those activities carried forward by the school outside the classroom. That these were actually considered something secondary and not a legitimate part of the school's activities has been indicated by the common practice of denying the student active participation in a number of them unless his scholarship in his class work was maintained at a level good enough to designate him as "eligible."

Because of the earlier view of the curriculum as only the classroom program, the 1930-1940 period of so-called curriculum reorganization must go down in the educational records as primarily a course-of-study building period, the courses of study having been turned out by the thousands for the various subjects in an attempt to improve the school through the subject approach to reorganization. So intensive was this movement, it has been estimated that as many as half of the schools and school systems of the country either built or borrowed courses of study, or at least had teacher study committees at work considering their classroom offerings.

Curriculum reorganization of this type became so technical during the period that some curriculum theorists classified the multitude of attempts into a few distinct types of approaches to the task. For instance, the adult-needs approach, if adopted, would lead the school and its teacher committees first to study adult needs and then to set up appropriate course offerings and practices. Other approaches were based on a socio-economic or a child-needs criterion.

Gradually these technical intricacies of school curriculum reorganization have lost their hold, and the problem of curriculum reorganization is now looked upon not as a mechanical task to be engaged in for a specific period of time in which a pattern would be developed by the master strategists to be

handed down as a guide for all teachers, but rather as a day-by-day improvement of the learning situations to be carried on by each teacher and each staff member of the school as long as he continues in service. However, the need for leadership is not minimized in this shifting of approaches.

With this more flexible conception of school modernization at hand, curriculum building becomes instead curriculum development. That is, the curriculum is not a framework of courses, subjects, and other activities to be determined entirely in advance and installed in the school prior to the time the teachers and the students come together; the curriculum is a constantly changing and emerging frame of reference, to be felt or sensed in a school rather than a thing to be mechanically manipulated. The real educational leader does not build a curriculum for his school—he provides for it.

There is now discernible a promising tendency in the secondary schools, as in the elementary schools, to distinguish, though not too sharply, between general and specialized education. The interest in the distinctions reveals the educator's concern today for educational goals, for no one would ever worry about such differences in offerings and activities unless he first had had in mind the purposes of the school's program.

General education is that part of the student's complete program that is being experienced by the whole group, so desirable do the curriculum planners consider it as training for the common life—for the common good—for general citizenship. For example, if the school asks all students to take United States History, then this subject must be considered as a part of general education. As distinguished from such a course, but not necessarily opposed to it, there are the specialized courses selected by individual students to meet particular needs. For instance, Latin, stenography, chemistry, orchestra, and a multitude of others stand out as specialized courses.

There has been a tendency in recent years to merge or to relate subjects and courses formerly offered independently. *Correlation*, *fusion*, *integration*, and *core* courses (qq.v.) are among the terms that have been used in this connection. This tendency has been particularly apparent in the area of gen-

CURRICULUM

eral education. Educators are re-examining and re-emphasizing their goals in the area of general training for life. It is no surprise, then, that such subjects as English, social studies, general or consumer mathematics, and art appreciation are losing their identity in core courses of a broadened and enriched nature. Since the study of English and mathematics results from the need for English and mathematics in everyday social affairs, surely these subjects are related to the social studies. This relationship gives point to the numerous attempts to eliminate artificial subject barriers in curriculum development.

The educator who draws his distinctions in general and specialized education, and thus sharpens his focus upon his goals, is just as cautious in not merging unrelated subjects as he is eager to eliminate artificial distinctions. For example, in the case of Latin, algebra, geometry, vocational machine shop, typing, and many other subjects of the specialized nature, it is apparent that efficiency of instruction asks that they retain their separate-subject distinctions. And, in the area of general education, when the educator sets out to teach a group to live better with their neighbors in the community, the course that results may be a half-day program that replaces and draws upon such former separate courses as English, community civics, general business training, general science, general mathematics, and art and music appreciation. Guidance, self-government, and similar features of the whole school program may also be drawn into this general course.

How these newer attitudes toward the curriculum are modifying school practice can best be seen from a study of the experiences which schools have when they attack the problems of curriculum construction from a modern point of view. The so-called core curriculum (*q.v.*) for example, can never be typed or described so definitely as a subject can be. For this reason it is unwise to point out a specific core course as the pattern to be followed. However, a student of this movement in secondary education would do well to study the various programs that have sprung from this concept during the past eight or ten years. There are the programs of that small group of California high schools known as the Co-operating Schools; the core

courses in the Denver public schools; those in the junior high schools at Springfield, Missouri; the work in the Norris, Tennessee, school; the core courses that are operating in the Tulsa, Oklahoma, schools; the courses under way at the Highland Park, Illinois, High School; the various combination courses that were developed by the schools in the Eight-Year Study; and hundreds of other examples.

A typical example of the workings of the core concept is that given of the Norris, Tennessee, program, in HAROLD SPEARS, *The Emerging High School Curriculum*. A description of this program as it was operating follows:

The organization of learning experiences up to the eleventh year follows the core plan. The key teacher of a core course is known as the core teacher and may come from any subject field. An English teacher may serve as the master teacher for the seventh-grade and eighth-grade group, a social studies teacher for the ninth-grade, and a science teacher for the tenth-grade. This plan of teacher assignment is possible, since the scope of the core is quite flexible, the experiences are drawn from many fields, and the services of the other teachers of the school are available in the progress of any one of the core programs.

Each class group in the high school, at the beginning of the school year, discusses and plans with the teacher the subjects or problems around which the work of that group will revolve for the year. The staff of the school feels that, given half a chance, students will no doubt choose areas of learning as least as valuable as those the school might set up. This planning period may extend from two weeks to a month. The basic activities of everyday life are taken as the point of departure in the planning. Bus trips to typical communities in the Norris area have been found helpful in this exploration, as have the findings of study groups elsewhere which have attempted to determine these basic activities of everyday living. Out of this study period comes the selection of the program to be followed.

The core program of the seventh-grade and eighth-grade group extends throughout the day. The center of interest is co-operation, and the students find action and give service

CURRICULUM

to the school through what is known as "the co-operative." Experiences and study grow out of services rendered the school through the cafeteria, the school bank, insurance, truck gardening, a supplies and candy store, and a lost-and-found department. The master teacher guides the group, with others from such fields as art, home economics, and agriculture coming and going as the work progresses. As in all groups, the emphasis is as much upon the democratic way of working as it is upon individual outcomes. As the studies of the students grow out of their co-operative activities, it can readily be seen how such specifics as written and oral expression and mathematics find their place in the course.

The ninth-year group spends three hours of the day under the guidance of the master teacher, with other teachers assisting. This core has absorbed the work formerly handled in the fields of science, English, and social studies. In the direction of the course, the obligation is to the student's needs and interests, both social and individual, and not to the former subject fields. It is necessary each year, for example, to devote considerable time to reading with understanding, writing legibly, and spelling correctly.

One year a section of the ninth-grade group selected the conservation of human and material resources as the year's topic. Out of this grew a specific interest in game control and the scientific use of land. The group was given permission to use and experiment with a typical tract of Tennessee land, approximately 100 acres, at the edge of the town and near the school. Co-operating in the development of this tract of land is the Forestry Relationships Department of the Tennessee Valley Authority. The whole program was developed around the project, one step leading naturally into another. Science, social studies, and English experiences became functional. Following the co-operative plan the Norris School endorses, the original class divided into five smaller groups, each responsible for the handling of twenty acres. Experiences out on the land would lead the groups back into the classrooms and the science laboratory for study.

The land, much of which was wooded, was surveyed from many angles. Each group, through its survey and follow-up work in

school, has a fair conception of the economic value of its section. Forest control and game control lead off as topics of interest. The wild life of the tract, both plant and animal, afford natural topics for study. Each of the five groups, in the handling of its section, has before it the possibilities of raising food to care for the animal life, harvesting the nut crop, producing food for human consumption, providing grazing land, and even harvesting the lumber. Chemistry, biology, economics, English, agriculture, forestry, and a dozen other former specialized courses grow naturally into one as this core course progresses.

The problems of the South formed the work of the tenth-grade core for one year. Out of the broader topic came intensive study of rural electrification and diseases of diet deficiency. Like the ninth grade, this group is under the direction of a core teacher for three hours, other teachers being called in as needed. Former subjects replaced include English, social studies, and science. At any time in the progress of the core course, provision is made for special interests of smaller groups growing out of the broader topics.

Students move freely in and out of the classrooms and laboratories of the Norris School, as their work leads them here and there. No teacher considers this an infringement upon his own rights, for the pupil and not the subject is the focal point. The science laboratory is really a laboratory. At any period of the day as many as a half dozen groups from various classes may be found there at work. Since this is the accepted procedure, it does not disturb the regular science work. It is the regular science work.

As part of her contribution to the core program, the English teacher handles the written and oral reports of trips and experiments. Each student has an individual record folder for these reports. An error chart is also kept in the folder. For the sake of individual needs, a part of the English work has no particular connection with the core experiences. The reading program, for instance, may go beyond the core program.

The topics chosen in the core program lean heavily toward the social-studies field, but, as has been indicated, other implications, such as the scientific, are given free

CURRICULUM, ENRICHMENT OF

play. The eleventh-grade and twelfth-grade social-studies courses, like the core courses in the lower years, provide for pupil selection of problems. No subject is necessarily taught from year to year. In one year the topics covered were as follows: tenth year, origin of modern civilizations; eleventh year, food and consumership; and twelfth year, county government and safe driving. Consumership provided special studies for small groups of students, of such commodities as soap, hats, and shirts. Manufacturing companies and others worked closely with the class in supplying materials, products, and other teaching aids, even sending materials to be tested by the students in the school laboratory. The drugstore of the town assisted in these tests, both with materials and with testing devices. In the government study, county officials gave the school full cooperation in the project.

The next year the following topics were selected by the classes: tenth year, problems of the South; eleventh year, international problems, crime, and housing; and twelfth year, labor, education, and safe driving. The Safety Service of the Norris Properties Division is co-operating in the teaching of driving to all seniors, not only in the techniques but in the actual experience. A representative of the state government will give the examinations and will grant drivers' licenses to those eligible.

This account of the Norris, Tennessee, program exemplifies the meaning of the statement that when subjects are no longer given major emphasis in the area of general education, areas of living or other centers of interest close to the here-and-now existence of the students find their place in the curriculum pattern. (See ACTIVITY PROGRAM; AREAS OF LIVING; BROAD-FIELDS CURRICULUM; CORRELATION (CURRICULUM); CURRICULUM, ENRICHMENT OF; FUSION; INTEGRATION; MINIMUM ESSENTIALS; UNIFIED STUDIES; UNIT PLANNING AND TEACHING.) H.S.-2

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CURRICULUM, ENRICHMENT OF.

There are two distinct conceptions of enrichment of the curriculum in operation in American schools. In the first and most widely used one, enrichment refers to the new subject matter and materials added to the usual content of subjects in order to increase the students' understanding of the basic material to be learned. Such subject matter and materials may come from within or without the field in which the subject is located. Regardless of the source of new materials, some points are reasonably clear. The control in the selection and organization lies with the teacher or someone representing the school authority. The basic subject matter of the subject is a rarely modified constant. The purpose of such enrichment is to improve the method of teaching such basic subject matter by removing some of the original formality. The new materials are used to improve the pupils' knowledge or understanding of these basic materials, not to make them more immediately valuable or functional. This distinction is important since the improvement of functional value would in many instances destroy the selected and organized basic materials. Illustrations of enrichment are the use of visual aids, plays, excursions and varied types of pupil activities in or out of school. (See such articles as AUDIO-VISUAL AIDS; DRAMATIZATION; TRIP, SCHOOL.) Two contributing factors in the movement for enrichment were (1) the increasing recognition of individual differences in pupils' abilities and interests, and (2) the inadequate achievement of pupils in the basic materials. This point of view of enrichment is dominant in educational practice.

A second but less understood conception is that enrichment refers to a continuous widening of the area of experiences of pupils in the surrounding culture in order that they may be better able to find their real problems, to set their directional guides, and to determine a desirable plan of action. The

problem represents a disturbance in the psychological field arising out of constant interaction with the environment. Enriching experience through wider movement in the environment expands the psychological field, causing many and varied problems to arise. Thus, choices of problems for study must be made which in turn implies control of the process of improving value judgments. Under these circumstances, (1) the control is with the cooperative group, (2) the purpose is to find out what experiences are worth studying and to study them intelligently, (3) the basic continuity is in the improvement of the process of intelligent social action, (4) the learnings are immediately functional in the operating experience. Use is also made of visual aids, plays, excursions, and many other types of pupil activities. The chief purpose of such enrichment is to aid pupils to improve the quality of their living in and out of the school through increasingly intelligent behavior in meeting everyday situations.

L.T.H.

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CURSIVE WRITING—See HANDWRITING, TEACHING OF.

CURVE, NORMAL—See NORMAL PROBABILITY CURVE.

CURVE OF FORGETTING—See MEMORY.

CURVE OF LEARNING—See LEARNING, CURVE OF.

CUSTODIAL CARE. The school janitor occupies an important place in the school system. Upon him rests the responsibility for the care and custody of the school building, equipment, and supplies, for keeping the building ready for community use and in condition to safeguard the health of teachers and pupils, and for maintaining the external con-

ditions necessary for effective learning. To a large extent, the school janitor determines the standards for the care of the school building; he is mainly responsible for favorable or unfavorable impressions of the public with respect to the physical aspects of the school.

The janitor is responsible for sanitary conditions of the schoolroom, toilets, grounds, and water supply. It is his duty to provide proper ventilation, and to keep the building at a uniform and even temperature. He removes fire hazards, clears ice and snow from the walks, washes windows, adjusts and repairs window shades, and performs hundreds of similar duties which keep the school in smooth running order. He should be well mannered and personally clean, and it is essential that he should have good moral character.

One of the most important duties of janitorial service is the cleaning of classrooms. Most regulations governing janitorial service specify that classrooms shall be cleaned after the close of the afternoon session of school. Corridors and stairs are cleaned usually between periods during the school day, and special rooms are cleaned at any time they are not in use during school hours. Frequency of cleaning depends to some extent upon frequency of use. Halls and corridors should be cleaned at least twice a day, and most classrooms once a day. The time required to clean a classroom depends upon the type of floor, the kind of interior finish, and the variety and character of equipment. The cooperation of teachers and pupils in keeping the building clean can save much time for the janitor. If the school building is to be cleaned properly, adequate manpower and proper cleaning materials and equipment must be provided. The janitor-engineer should know the best types of equipment and the best materials, agents, and treatment to use in his work.

It is obvious that the position of school janitor should be occupied only by a person who understands the duties to be performed and the fundamental facts about health and sanitation. In spite of the recognized importance of janitorial service, however, progress in this branch of service has lagged behind progress in other phases of school work. Although the tendency is definitely in the direction of improvement of janitorial service—

through increased salaries, specialized training, and greater security—the typical janitor is nevertheless a person with little or no specialized training and with inadequate general education. Frequently he is old, overworked, and underpaid.

Pioneer work in training of janitor-engineers and custodians began in Minneapolis. Attention is now being given to the problem throughout the country. Many cities have instituted training courses for this type of work, and Missouri has a state-wide training system carried on under the auspices of the State Department of Education, with centers in the

cities and teacher-education institutions. In some other states, universities and colleges now provide training courses for janitorial service.

L.E.M. and M.F.S.

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D

DAILY ASSIGNMENT — See **ASSIGNMENT**.

DAILY LESSON PLAN. A plan prepared by the teacher in advance of a class meeting, the daily lesson plan is a guide to the content to be treated and the procedures to be followed during the lesson. In present-day practice the daily lesson plan is a plan of the activities to be carried on during a class period, rather than a lesson to be recited.

Investigations indicate that teachers are required to prepare written daily lesson plans in fewer than fifty per cent of our schools. The requirements for such plans vary from mere outlines of topics to be taught to detailed explanations of the particular items to be treated. Among the items comprising written lesson plans are the following: aims or objectives, outline of subject matter to be covered, learning activities or exercises, methods and techniques to be used, assignment for the day, and reference books to be used by the class.

There seems to be little uniformity in the arrangement or the order in which these items are put in the plans, except for the common practice of stating the aims or objectives at the beginning of the plan. Some teachers use the parallel column form (usually two columns), with the subject matter or topics in one column, and in the second column the learning exercises and methods to be used. In many schools which require plans, teachers are supplied with plan books that provide a small space for each class for each day of the week. Such plan books usually contain little more than outlines of the subject matter to be covered and actually should not be designated as plans. A good lesson plan contains at least four items, namely, the objectives of the day's work, the learning experiences and content through which the objectives are to be attained, the methods and special techniques to be employed, and the assignment.

Many teachers and administrators regard the daily lesson plan as a symbol of the subject-dominated school because of the implied assumption that it is the teacher who must decide in advance what is to be discussed in class as well as the order in which the various questions are to be taken up. In any school where the curriculum (*goal*) is viewed in a more modern manner, the planning of the day's activities is a co-operative responsibility which concerns the students as well as the teachers. Objection has been raised also to the implication that the daily lesson is the unit of learning and that the child's experiences at school can be planned in terms of a series of discrete lessons, each with its own objectives and procedures.

It is such objections as these which have led to the changing concept of lesson planning. Emphasis is being placed increasingly on planning not in terms of single lessons but in terms of the larger units and experiences. The lesson plan, moreover, is not treated by the teacher in the way a physician regards a physician's prescription. The lesson plan guides without dominating; it is highly flexible; and it is adaptable to the particular needs and problems, anticipated or unforeseen, that arise in class. The detailed lesson plan, made according to a rigid outline that tended too often to limit classroom procedures and to place undue emphasis on subject matter at the expense of pupil needs, is being replaced by more flexible plans which recognize the aim of the teacher's preparation as being the more effective guidance of his students' experiences. (See also **DRIFT, CLASS**.)

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DALCROZE — See EURYTHMICS, DALCROZE.

DALTON PLAN. Helen Parkhurst introduced this plan in the school system of Dalton, Massachusetts, about 1920. Her concept of teaching was at variance with the traditional practice of that time; her innovations are embraced in the *Dalton Plan*.

The heart of the plan is the mimeographed or printed *contract* which constitutes the work for a school month of twenty days, and the contract in turn is composed of daily portions called *problems*. A contract relates to some large topic or division of a subject, e.g., the study of China in geography, with the problems as subdivisions of the topic. Some of the problems are given weights of two days' credit while others receive half a day's credit. These problems specify the readings, questions, maps, written work, and other exercises that must be completed for the pupil to get credit. After completing one or more problems, the pupil indicates on the room graph after his name just how much he has done; by this means the teacher can keep track of his pupils' progress. Since the pupil has his own graph, he knows also how far he has gone in each subject covered.

Budgeting of time is also involved because a pupil is free to move from room to room and to stay with one subject as long as he desires, provided he does not neglect other subjects. There are no bells announcing periods. Scheduled meetings of a class occur about once a week; these periods are devoted to debates, socialized discussions, or other important matters demanding the attention of all class members.

The emphasis upon the planning of the contract is probably the chief contribution of the plan. Working out the learning exercises leading to the attainment of aims in the general topic for the month requires more teacher foresight than making a daily assignment. Correlation between the subject fields demands faculty cooperation. Attempts are made to link the contract with the preceding one, and to use and locate "pockets of interest."

While the plan has been used widely, it has not been copied in its entirety, but it has been modified to fit circumstances. The freedom to move about from one class to another or to continue working in one class-

room has been generally eliminated. Correlation of subject matter may or may not be achieved. Instead of being a school innovation, the plan may be used by only a few teachers in the school.

The contract method of teaching includes the contract as a label, but the artificial block of work for a school month has often been discarded as have been the portions for daily work. Rather, the contract takes on the characteristics of what is now called the *unit*. It is a shift from the daily assignment to the consideration of a large topic or problem. It is also a shift from highly individualized activities to social or group activities. This treatment includes the objectives to be attained, the learning exercises, and the guides for study.

In the original Dalton Plan the contract was mimeographed or printed, and each pupil received a copy. The time devoted to the contract varied according to the ability of pupils and the nature of the topic under consideration. Provisions for individual differences were met by additional projects or undertakings for bright pupils. So much has been incorporated in the concept of *contract* that it can mean just what a teacher wants to read into it. One writer has suggested that the term be discarded because there are other more appropriate labels, such as *unit* (See UNIT PLANNING AND TEACHING), which describe better the kind of teaching in progress.

F.A.B.

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DAMAGES FOR DISMISSAL — See TEACHERS' CONTRACTS.

DANISH FOLK SCHOOL — See DENMARK, EDUCATION IN; FOLK SCHOOLS.

DARTMOUTH CASE. Constitutional limitations against State legislative control over private institutions of higher education are illustrated in the famous Dartmouth College case. In 1769 King George III of Great Britain granted a charter to Dartmouth College. In 1816, the New Hampshire Legislature adopted two statutes, without the con-

DAVISON FELLOWSHIPS — DAYDREAMING

sent of the Trustees of the College, which would have altered the charter in material respects including changing the name, the selection of trustees, and the control of the property. In a proceeding to recover the College books and property, in which the College was represented by Daniel Webster, the Supreme Court of the United States led by Chief Justice Marshall held the legislation unconstitutional as abrogating Article I, Section 10 of the Constitution of the United States which forbids any state from passing any law impairing the obligations of contract. Since the crown charter was in the nature of a contract between the King and this private corporation, the constitutional protection applied to it. *Trustees of Dartmouth College v. Woodward*, 4 Wheat. 517-715 (U. S. 1819).

The practical effect of the case, which is an important one in constitutional law, has been weakened by a general practice since used by states at the time of granting charters to reserve the right to amend or revoke charters, as well as by later decisions of the Court in extending the powers of the state to control certain types of corporations.

H.N.R.

DAVISON FELLOWSHIPS — See SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

DAY NURSERY. A day nursery is a place where mothers may leave their children during the day while they are away at work. The aim of the day nursery is primarily to give physical care and protection to young children of working mothers.

When the industrial employment of married women reached a peak of three million in 1930, the number of day nurseries increased until in 1931, there were about 800. Most of these are in the industrial centers of the East and Middle West.

The nursery school (*q.v.*) is to be distinguished from the day nursery in that the former is primarily an educational institution with pedagogical methods and objectives, whereas the day nursery often provides only physical care; though, of late years, some day nurseries under institutional agencies have been expanding their services by introducing kindergarten and social case work.

M.E.F.

DAYDREAMING. In daydreaming, reverie, or fantasy (also phantasy) an individual attains satisfaction through the imaginary representation of experiences not achieved in reality. Daydreaming is common among both children and adults. It may occur as the result of inhibiting the play of self-centered children who have failed to develop active interests. An inappropriate curriculum may also contribute to daydreaming; the dull child does not comprehend what is going on and the bright child is not challenged, hence they resort to reverie. Generally there is more daydreaming during adolescence, probably due to an increase in problems of emotional adjustment at this period.

The most frequent use of fantasy at all age levels is as a form of compensation for, or escape from unpleasant reality. This is shown in the content of daydreams, which may be classified either as the "suffering hero" or the "conquering hero" type. If the individual feels that he is unfairly treated, he may imagine himself to be a suffering hero or martyr who is the object of pity and sympathy. If opportunities for a reasonable amount of self-assertion are denied him, he may resort to the conquering hero fantasy wherein he pictures himself as an important personage or hero receiving the plaudits and adulations of the multitude.

Daydreaming as creative imagination is constructive, especially in art, music, drama, and literature. It may also contribute to adjustment by reducing emotional tension. Fantasy may have recreational value, too, if the person attending a movie or reading a story identifies himself with the characters. Daydreaming is serious only when it is used excessively and becomes a substitute for real accomplishment.

It is important that every individual be taught to expect some failure, to face it squarely, and to make daydreams come true. (See ESCAPE TENDENCY; MENTAL HYGIENE.)

R.V.M.

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DEAF, EDUCATION OF THE. The education of the deaf has made great progress during recent years. Not so very long ago, the deaf were legally classed with idiots, usually confined to institutions, and generally referred to as "deaf and dumb" or "deaf mutes." Today, educators are aware that the deaf are a group of people with the same range of intelligence as hearing people and, given the proper educational opportunities, they will be useful citizens, economically independent, and competent to direct their own affairs.

Types of Deaf People: There are two types of deaf people, those who lost their hearing after having acquired speech, and those who either were born deaf or lost their hearing before language had been established. People with normal hearing have language and speech, not because they were formally taught, but because they imitated first sounds, then words, then phrases, until finally, they could enunciate whole sentences. To this group, language is indeed a gift! To the group handicapped at an early age by deafness, the acquisition of language is a long, laborious process.

At a Conference of Executives of American Schools for the Deaf, the following definitions were prepared and adopted:

The Deaf: Those in whom the sense of hearing is nonfunctional for the ordinary purposes of life. This general group is made up of two distinct classes based entirely on the time of the loss of hearing; the congenitally deaf—those who were born deaf; the adventitiously deaf—those who were born with normal hearing but in whom the sense of hearing became nonfunctional later through illness or accident.

The Hard of Hearing: Those in whom the sense of hearing, although defective, is functional with or without a hearing aid.

Causes of Deafness: About fifty per cent of the population of the average school for the deaf is made up of congenital cases. The remaining cases are due to such adventitious causes as meningitis, mastoiditis, birth injury, and the infectious and contagious diseases of childhood. The amount of hearing loss is not standardized by cause. The congenitally deaf may be profoundly or only partially deaf. This is true, also, of the adventitiously deafened.

Testing: The group audiometer makes possible the testing of groups of forty at a time. It is simple to administer and to interpret. Pupils who are screened out with this test as having some loss should be given an individual test.

A decibel is the smallest amount of sound that the normal human ear can distinguish. The pure tone audiometer is an individual testing machine and makes possible a graphic picture of one's hearing loss. This picture is called an audiogram. The tones usually tested are 64 (middle C), 128, 256, 512, 1024, 2048, 4096 and 8192. These tones are called frequencies. The tonal range of the human voice as used in speech is, for the most part from 300 to 3,000 frequencies. For educational purposes, the audiogram in this speech range is most indicative. An average of hearing sensation units or decibels loss on the frequencies 256, 512, 1024, 2048 and 4096 is called the speech hearing loss.

What Hearing Loss Requires Special Education? If the hearing loss is sufficient to retard normal progress in the usual school, the child requires special education. When studying a case, one must consider, in addition to the pupil's other defects (the diseases that ravage the hearing often leave some other physical defects), his emotional stability, social adjustment, general intelligence, and school record. The school record may show retardation or behavior difficulties. A careful study of the physical, mental, emotional and educational history will usually indicate whether the child is able to make satisfactory progress and adjustment in a regular school. As a rule, a loss of fifty decibels indicates the need for special education.

With a hearing loss of fifty or more decibels in the speech tones, it is important that the child receive special handling educationally. In the large classes of normal children, the severely hard of hearing pupil is lost because of the garbled speech sounds that reach his ear and the weird interpretation he gives them. The child who does not hear the initial or final sounds of a word presents the effect of being backward and of having a speech defect because in turn he gives orally what he heard instead of the correct speech pattern. "The speech sometimes becomes wholly unintelligible" and the qual-

ity of voice undergoes great change. These pupils have increasingly progressive speech defects unless trained by a teacher who is well equipped to handle their special problems. Often the hard of hearing pupils experience academic failure and become behavior problems before they are placed in special classes. Some of these children have even been placed in classes for the mentally retarded before the true nature of the defect was recognized. Since the passage of the New York State Law in 1936, which requires the hearing of school children to be tested annually, these cases are growing fewer in number.

However, many children with a loss of fifty decibels can get along very well in a school with hearing children because of intellectual and personality endowments. On the other hand, less able pupils with a loss of forty decibels may have a history of retardation and behavior difficulties that require special treatment, and should be given an opportunity to make the necessary adjustments in a special school.

The Importance of Oral Instruction for the Deaf: It is extremely rare that anything is wrong with the speech organs of a deaf person. He is organically equipped to acquire speech and language. To deny him this right by teaching him through signs instead of by oral instruction, is to cut him off from his fellow-men.

How a Deaf Child Learns to Speak: On entering the kindergarten classes, the little ones, who are profoundly deaf, will produce inarticulate cries, grunts, and make known their wants with the use of gestures. A special program of education gives this child a vocabulary, teaches him to use his voice in speech patterns and gives him the language principles by which he can make himself understood. All this is a time consuming process and must be built up very carefully. The hearing child of five years of age speaks fluently, has a usable vocabulary, and understands language far beyond his ability in expression. These first five years in the hearing child's life are lost to the deaf child.

The deaf child coming to the kindergarten at the age of five has not one word in his vocabulary. His only means of communication has been by gestures. The kindergarten

teacher must first make him aware that when her lips move, something important happens. The teacher uses the tactile, visual, and auditory approaches by having the child feel the voice vibrations while he is watching her lips as she says a word. At one and the same time, she is teaching the lip-reading of this word, building up as rich a concept of meaning as possible, presenting the written word, and preparing the way for speech. By using a large mirror, and with the child's face next to hers, she gets him to imitate her speech formations. Then with the child holding one hand on her face and the other on his own, she starts the arduous task of teaching him to speak artificially. Of all pedagogical problems, teaching speech to the deaf is acknowledged the most difficult. The teaching of twenty-five words in speech in six months is rapid progress. Compare this with the hearing child of the same age who will have a thousand words or more in his vocabulary.

The speech of the deaf is labored, and naturally so, when consideration is given to the fact that they have been taught artificially to produce sounds and not just naturally to imitate what they hear as does the normal child. Every word in their vocabulary must be taught for the concept, pronunciation, and inflection. Mechanics, rhythm, pitch, accent, volume and quality of speech are conveyed to these pupils by visual, tactile, auditory and kinesthetic impressions as a substitute for the lost sense of hearing.

Language: Now that a start has been made in speech and lip-reading, it is necessary to teach language. The hearing child acquires his speech patterns and his speech simultaneously. Not so the deaf child. He may be able to lipread and to say the word "jump" but he cannot use it. Not until he is taught some pronouns and their meaning, can he use the word. Each language pattern, each idiom, each tense must be taught separately. Language is the most human activity and the greatest means of social intercourse. "The acquisition of a foreign language, under normal conditions of learning, is child's play compared to the difficult course that lies before the born deaf boy who has to acquire his mother-tongue artificially." The lack of speech and language cuts the deaf off from their fellow men. No effort is too great to bridge this gap.

DEAF EDUCATION OF THE

Group Hearing Aids: A group hearing aid is an electrical machine for amplifying speech. It has a pair of head phones for each pupil in the class and a rheostat that enables him to control the volume of sound. There is a microphone for the teacher. Some group hearing aids have individual microphones. The assistance received from the use of the hearing aid depends on the amount of residual hearing. Some pupils are enabled to hear music, some speech, others pitch and rhythm, still others hear only impulses. The results of training with a group hearing aid are:

1. Better speech development.
2. Improved interpretation of meanings as a result of better combined visual-auditory discrimination.
3. Aesthetic development through improved appreciation of the beauty of sound, whether the sound be speech or music.
4. Improved mental hygiene.

With hard of hearing pupils, a hearing aid is invaluable and through effective and co-ordinated programs for its continuous use there is more hope for the acoustically handicapped than ever before in the history of the world.

Special Schools: The type of provision that can be made for the special education of acoustically handicapped children is illustrated by Junior High School 47 in New York City which is supported by the Board of Education. It is the largest day school for the deaf in the United States. The school is equipped with a semi-soundproof room and audiometers for testing the hearing acuity of children in attendance and for those referred by other schools and outside agencies.

The school has the services of a nurse and of an otologist who gives examinations, makes diagnoses and assists with the guidance aspect of the clinical work.

The school has a special curriculum in Speech, Lip Reading, Language and Acoustic Training. (See SPEECH READING.) These are special tools the deaf child must acquire in order to function as a member in a continuously progressing society. The acquisition of these arts and skills makes for the actualization of the potentialities of each individual deaf child. In addition to this special work, the school covers the New York

City curriculum from kindergarten through the ninth year.

Because of the loss of hearing and its accompanying handicap in speech and the use of language, instruction of these pupils must be greatly individualized. Classes have ten children. The small class enables the teacher to be cognizant of each child's mental, physical, emotional, moral, vocational and avocational efficiency and to individualize guidance at all times.

The equipment in this school is different from that of other public schools. One complete side of each room is made up of windows, thereby giving the maximum amount of light so necessary when eyes must do the work of both sight and hearing. Lip-reading can thus be facilitated.

In addition to the unusual seating arrangement, the school is equipped with electrical group hearing aids. In some rooms each desk has a microphone for the child's use. In other rooms, there is just one microphone. All desks have earphones and individual controls for augmenting or decreasing the volume of sound transmitted. The use of hearing aids has proved to be of inestimable value to the children.

Free bus service from other parts of the city is provided by the Board of Education for the pupils of this school.

The school maintains an after school recreation room for the children, equipped with ping-pong tables, basket ball, skill ball, and similar games. A teacher of the school is always present to assist the children in their self-directed, self-planned activities.

Visual aids are of major importance in the specialized education of the deaf. A collection of the various types and devices unique to the teaching of the deaf have been gathered in Junior High School 47. A large collection of pictures, an important instructional tool of the deaf, miniature objects, slides, posters, movies and similar objective material is widely used.

A teacher's library of professional literature amounting to several hundred volumes offers assistance in this special field of education.

The Volta Bureau: The Volta Bureau located in Washington, D. C. was established in 1887 by Alexander Graham Bell for the increase and diffusion of knowledge relating

to the deaf. It has the largest library on deafness in the United States, the resources of which are at the disposal of research workers, teachers, and others interested in the deaf and the hard of hearing.

The *Volta Review* founded by Alexander Graham Bell in 1899 is the official organ of The American Association to Promote the Teaching of Speech to the Deaf. It is a monthly magazine for educators and parents of the deaf and for the hard of hearing. It contains professional articles for teachers and practical suggestions to parents of deaf children. H.McL.

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DEAN. The various types of deans include deans of boys and of girls in secondary schools, deans of men and of women in higher institutions, junior deans, academic or administrative deans of independent colleges and of the units or schools that comprise a university, graduate deans, and deans of administration on a university-wide basis.

Deans of girls and of women are engaged in both personnel services and administrative duties, including educational, vocational, and social guidance; administration of housing (for the college); and supervision of group activities; however, vocational guidance and full-time placement services are being increasingly performed by other persons. A similar service is performed by deans of boys and of men, whose duties usually are related to discipline and attendance, counseling, stu-

dent aid, housing (for the college), and health; to students in scholastic distress; and to the coordination of extracurricular life.

The position of junior dean has been established at Ohio State University in five colleges to advise freshmen and sophomores concerning courses, programs, vocations, and personal problems; to secure curricular and instructional improvements; and to stimulate the formation of student organizations with intellectual interests.

The dean of an independent college or of a unit within a university has general responsibility for college entrance, graduation, curriculum, instruction, staff, faculty meetings, student-faculty relations, budget, and equipment.

The graduate dean in a university coordinates the efforts of the various departments that offer work toward an advanced degree, especially the graduate programs in arts and sciences.

In some universities a dean of administration or dean of faculty acts as an administrative and supervisory assistant to the president, with duties similar to those performed by a vice-president. C.V.G.

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DEBATING. Debating is one of the forms of oral argument conducted under rules. Formal debating as practiced in schools and colleges or universities is ordinarily undertaken by teams, one team presenting the arguments of the affirmative side of a proposition previously selected, the other the negative side. A team usually comprises three speakers (although sometimes two or occasionally one) each of whom delivers a main speech of ten or twelve minutes followed by a second speech, known as the rebuttal, of three or five minutes. Speakers of opposing teams alternate in presenting their speeches.

Debating is widely included as a curricular and an extracurricular activity in the secondary schools, colleges, and universities. In the secondary schools there may be an elective course in debating for upper class-

men offered by the Department of Speech or of English; or there may be debating societies advised or "coached" by an interested member of the faculty. In colleges and universities the curriculum generally contains courses of such titles as Principles of Argumentation and Debating, Forensics, Persuasion, or Debating, as well as an extracurricular activity in the same field. Thirty to fifty students, belonging to a debating society, compete for places on the varsity team, which may travel several hundred miles during the course of a semester to meet teams of other colleges in scheduled debates. Organizations such as the Mid-West Debate League, the Eastern Inter-Collegiate Debate League, the Western Conference Debate League, and Pi Kappa Delta, the intercollegiate honorary forensic fraternity, sponsor annual programs and tournaments and issue propositions of timely interest for the debaters. Some colleges and universities, through their Departments of Speech, hold debate contests for local secondary schools.

Although debating and disputation have been an important part of the classical tradition in education from the days of ancient Greece and Rome, in recent years some educators have questioned the ascribed values of formal debating. They feel that it does not provide participation for student bodies. Also, they question the values involved in the participant's assigned task of presenting one side of a proposition with the objective of winning a decision rather than arriving at an objective solution of the issues. To meet such criticisms other forms of debating have been developed: (a) *Decisionless debating* follows the classic form, but as the term implies does not entail the selection of a winning team. (b) In the so-called *Oregon Plan* each of the two speakers on a team is cross-examined for eight minutes by his opponent. Only specific questions are allowed by the chairman. The Oregon Plan may be used with or without decisions. (c) The *heckling* type of debate permits each speaker two minutes of uninterrupted discourse at the beginning and at the end of his presentation; in between, the audience is given the privilege of addressing questions to the speaker with the permission of the chairman. (d) The *direct-clash type* of debate is composed of an initial speech of five or eight minutes, given by the leader of each

side, in which the proposition is defined and analyzed. The negative indicates clearly his point of agreement and disagreement with the analysis of the affirmative. The remainder of the debate is then limited to the issues on which disagreement is clearly demonstrated. After each issue or phase of issue is presented there is a rebuttal, ending with a summary. The judges may rule that a "clash" or issue is ended when in their estimation one side has obtained a decided advantage. (e) Also popular are less formal types of debating such as *The British Type* and *The Congressional Type*. They follow broadly the parliamentary procedures of debate employed in the House of Commons and the United States Congress respectively. (f) In some schools formal debates have been replaced by the forum, the round table, and the panel discussion (*q.v.*). (g) The various forms of debate may also make use of the *audience ballot*, which is customarily phrased thus:

(Mark X in the proper place)

Before the debate I am

- _____ Favorable to the affirmative of the proposition
- _____ Neutral on the proposition
- _____ Opposed to the affirmative of the proposition

After the debate I am

- _____ Favorable to the affirmative of the proposition
- _____ Neutral on the proposition
- _____ Opposed to the affirmative of the proposition

Signed _____

Various methods of computing the audience ballot have been proposed to evaluate the success of the teams in the art of persuasion. (See SPEECH EDUCATION.) J.F.B.-I

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DEBT—See FINANCE, SCHOOL.

DECENTRALIZATION IN EDUCATION—See **CENTRALIZATION IN EDUCATION**.

DECILE—See **PERCENTILE**.

DECORATIONS, CLASSROOM — See **CLASS MANAGEMENT**.

DEDUCTIVE METHOD — See **INDUCTIVE METHOD**.

DEGREES. College and university degrees are those designations which indicate the grade or rank to which one has been admitted because of his attainment, presumably scholarly. Each year about 165,000 persons in the United States receive the baccalaureate or first professional degree, 21,000 receive the master's or comparable degree, and 3,000, the doctorate.

The original baccalaureate (*q.v.*) degree, bachelor of arts (A.B.), has a continuous history of seven hundred years. It was first granted for the rank of apprenticed teacher; at this time three more years of work were required for the real university degree. In the fifteenth century it took four years to secure the A.B. at Oxford. After securing it one might study law, medicine, or theology.

From 1642 to 1851 there was no recognized liberal arts college in America which gave any other degree than the A.B. The bachelor of science (B.S.) was first conferred by Yale upon four graduates of its Sheffield Scientific School. The Bachelor of Philosophy was first set up by Brown University in 1850. *The doctorate* (Doctor of Philosophy—Ph.D.) was given first in 1861.

An incomplete list of the types of degrees granted in recent years by educational institutions includes the following:

Associate degrees	14
Bachelor's degrees	40
Master's degrees	34
Doctor's degrees	33
"Fellows"	20
"Graduates"	2
Licentiates	21
Designated (such as Civil Engineer)...	6
Special	6

The above list includes both honorary degrees and degrees given in course. The first honorary degree given in America was by Harvard in 1692. Few were given before 1776. In the academic year 1937-38, 1,500 honorary degrees were granted in the United States alone. Of these 571 were the degrees

of LL.D. (Doctor of Laws), 334 were D.D. (Doctor of Divinity), 142 were Litt.D. (Doctor of Literature or Letters), and 136 were Sc.D. (Doctor of Science). Among the other honorary degrees granted during that year were the degree of L.H.D. (Doctor of Humane Letters), A.M. (Master of Arts), Eng. D. (Doctor of Engineering), Mus.D. (Doctor of Music), Ped.D. (Doctor of Pedagogy), D.F.A. (Doctor of Fine Arts), M.S. (Master of Science), D.C.L. (Doctor of Classical Literature), Ed.D. (Doctor of Education), and S.P.D. (Doctor of Political Science). There were thirteen types of master's degrees, led by M.A. and M.S., and four types of baccalaureates. (See **GRADUATE EDUCATION**; **HIGHER EDUCATION**, **LIBERAL ARTS COLLEGE**; and such articles on professional education as **LEGAL EDUCATION** and **MEDICAL EDUCATION**.)
R.A.K.

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DELINQUENCY—See **JUVENILE DELINQUENTS**.

DELUSIONS. Delusions are false judgments or beliefs. Although they are not true to fact and are out of harmony with the individual's background and environment, they persist and do not seem irrational to him. Normal beliefs differ only in degree from those of the insane; and one can appear perfectly normal, yet believe in some absurd delusion.

These distortions of reality may arise from emotional conflict or may be induced temporarily through hypnosis. From the standpoint of content they are often classified as delusions of (1) melancholia, (2) persecution, and (3) grandeur. For example, the individual may feel very humble or he may think he has an incurable disease. The persecuted patient feels depressed and may hear voices accusing him of some fancied injustice, or he may interpret the well-intentioned remarks of his friends as reflections upon his integrity, intelligence, etc. He may even feel

that they are plotting or scheming against him. An individual may have delusions of an expansive nature, such as owning untold wealth or being the father of God. These, obviously, are examples of symptoms of abnormality, but the prejudices which we encounter in everyday life are illustrations of mild delusions.

Children, especially those who are more introverted, may develop the delusion that they are adopted or unwanted, because they have misinterpreted certain remarks and home situations; and all further experiences seem to confirm their beliefs.

The most satisfactory methods for preventing the development of delusions are: building up attitudes of self in harmony with the individual's abilities, creating opportunities for success, establishing feelings of security, and encouraging the individual to discuss his problems with a sympathetic adviser.

F.K.M.

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DEMENTIA—See MENTAL DEFICIENCY.

DEMOCRACY AND EDUCATION. It is a commonplace that every culture seeks to perpetuate itself. The familiar statement that the purpose of education is to "conserve the values of the past" is usually taken to mean that certain basic beliefs and values are to be transmitted to the younger generation. A culture, however, is a living, growing thing; it normally harbors a variety of conflicting values. Besides conserving the values of the past, therefore, it is necessary to select the values that are to be conserved. Decisions have to be made as to the true meaning of the culture, and these decisions become a basis for determining what should be taught and what may be taught.

Those values which are thus given preferred status are sometimes called the *frame of reference* for educational activities. This frame of reference may be determined by governmental authority, as in totalitarian countries, or by private agencies, as in parochial or other private schools, or by pressure

groups, with which we have become extensively familiar. Generally speaking, the purpose in each case is to protect certain particular beliefs and values by utilizing the schools as agencies for their perpetuation.

The practice of deciding in advance which beliefs and values are to be inculcated is sometimes designated as indoctrination or authoritarianism. At first glance it may easily appear that democracy cannot have a frame of reference of its own. It does not set up a recognized authority for deciding what the frame of reference is to be. It has no official creed by which to determine political or theological or economic orthodoxy. It is not antecedently committed to the preservation of any particular institution, or item of belief; it offers no advance assurance of protection for any kind of sacred and ultimate truth.

These negations result from the fact that democracy is concerned to protect the integrity of the individual against exploitation by social pressure. This protective attitude, however, is far from being just negative. It springs from a theory of values or "frame of reference" that is as positive and as distinctive as any other. From the standpoint of democracy our standards of conduct have their origin in the experiences of associated living; they cannot claim any transcendental or cosmic sanction. Democracy starts with the proposition that man becomes man by sharing in the larger life of a group. It is through participation in common purposes and common concerns that the individual achieves intellectual, social, and esthetic meanings and values. The democratic quality of a society is tested by the way in which it deals with the conflicts that inevitably arise. It is democratic to precisely the extent that it undertakes to resolve conflicts by widening the area of common concerns, that is, by enlarging the group through the discovery or creation of wider purposes so that the conflicting interests can unite on the basis of a common program. For this principle it claims universal applicability, ranging all the way from family life to industrial relations, and to international affairs. Democracy sets its own standard for right and wrong as a basis for a distinctive way of life.

This conception of democracy provides a perspective which reverses our traditional notion of education. Instead of identifying

DEMOCRACY AND EDUCATION

education with the process of fitting the individual to a predetermined social order, it makes education a process of adapting the social order so as to release the capacities of the individual. Education begins with the assimilation of the individual to his immediate group, which ordinarily is the family. It continues in all the other relations of life insofar as these lead to the sharing of purposes and interests, or the cultivation of the spirit of "team-work." All such education has a democratic quality to the extent that the individual has a voice in determining what the common purposes are to be, i.e., in adapting the "social order" to himself. Education becomes completely democratic when the ideal of continuously extending the domain of voluntary participation in joint undertakings becomes its test of progress or frame of reference.

Since common interests must emerge from an aggregate of individual interests, it would seem to follow that the latter can never be absorbed or replaced or even minimized by the former. The individual retains his everlasting uniqueness under all circumstances. The difference that democracy makes is that it provides a specific context or quality for individual living. In an ideal democracy every person would be concerned with extending the area of common concerns, not by giving up his particular interests and pursuits or by suppressing the particular interests of his neighbor, but by including them all in a comprehensive plan or scheme for the organization of social relationships. In other words, every person would live his life in his own way, within the limits set by the inclusive democratic purpose. This inclusive purpose would provide continuous intellectual, social, and esthetic stimulation to every member of the group and so make life a process of continuous education. The function of the schools in such a social order would presumably consist largely in imparting those skills and factual learnings which are not easily acquired on the job. Everything else in education would be an integral part of everyday living.

But we are not living in an ideal democracy. Our national culture has its source in a European, non-democratic civilization. We are living in a period of transition and confusion, which means that our schools have

a much larger and more difficult task. Their first and immediate task is so to organize their activities as to cultivate the spirit of cooperation and loyalty to the group in which democracy has its roots. That is, the schools must undertake to become within their own sphere, the best possible embodiment of democratic sentiment and practice in the management of their affairs. A further task is to widen the sense of group loyalty beyond the walls of the school to include the democratic activities that are going on in the community outside. And, lastly, the schools have the task of clarifying or intellectualizing the basic principle of democracy: that conflicts of a group with other groups, or conflicts within a group, are to be adjusted, wherever possible, not by taking our stand on eternal and immutable principles or values; but by discovering wider and more inclusive aims and purposes to which all can contribute as a common undertaking.

In brief, the task of the schools in a culture that professes allegiance to the ideal of democracy goes considerably beyond the obligation to conserve the values of the past. Both in school and out of school the ideals and practices of authoritarianism are carried over from earlier times, so that our values have become confused and contradictory. It follows, therefore, that the schools must assume responsibility both for the application or exemplification of democracy in their own procedures and for the interpretation of democracy as a distinctive way of life.

Progress in this direction must necessarily be slow, but much has already been accomplished. The changes that have resulted from the endeavors to subordinate curriculum requirements and administrative procedures to the needs of pupil development are extensive and significant. The gap between school and community is being bridged. Least progress has been made in the realization that democracy has an ethics of its own, which conflicts at vital points with traditional beliefs and practices. The realization that a choice of underlying philosophies is involved is still unclear, and it must be achieved if democratic education is to become completely conscious of what it is doing and if it is to enable the oncoming generation to assume intelligent direction of its affairs.

B.H.B.

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DEMOCRACY, PROBLEMS OF—See CITIZENSHIP, EDUCATION FOR.

DEMONSTRATION — See LECTURE DEMONSTRATION.

DEMONSTRATION TEACHING. Demonstration teaching usually refers to teaching situations that are planned and conducted especially for the benefit of prospective teachers who are undergoing their professional preparation. although demonstration teaching may also be used as a means of in-service education. The aim of demonstration teaching is to portray a variety of actual teaching situations which will give students a first-hand picture of the problems, methods, and procedures of teaching. It enables the students to observe closely how an experienced and capable teacher conducts a typical situation and then provides opportunity for the demonstration teacher, the students, and the college instructors to discuss the principles of good and bad teaching that underlie the procedures. It also enables students to observe the learning developments and difficulties and the personality problems of young pupils as they are handled by the demonstration teacher.

Several types of demonstration teaching may be referred to. A college class may go to a laboratory school or practice school to observe a demonstration of an actual and regular class situation, or the school teacher and pupils may go to the college classrooms to carry on the demonstration. A teacher or a student may conduct a class of the college students themselves in order to utilize the techniques of participant-observation and al-

low for discussion within the group of the teaching problems thus raised. In some cases demonstration teaching may even include the conduct of a class of pupils by one of the college students themselves.

Despite the advantages of demonstration teaching in the direction of a controlled situation which brings out clearly the principles of teaching deemed desirable and which portrays actual methods of good teaching, the limitation is that the controlled situation may not be a typical situation that prospective teachers may meet in their own jobs. Demonstration teaching also fails to give to the student himself the active participation necessary for full realization of the problems of teaching. Much can be gained from the observation of teaching, but full completion of the process requires responsible participation in actual teaching. (See STUDENT TEACHING; TEACHER EDUCATION.) R.F.B.

DENMARK, EDUCATION IN. The first schools in Denmark were established by the Christian missionaries in the ninth century. During the Middle Ages in the cathedral towns there were Latin schools, some very large with from 800 to 900 pupils, especially for the education of the clergy. When, after the reformation, the Lutheran church became the state church, schools were established in every town. The landed property formerly belonging to the Catholic church was confiscated by the state, but administered for the benefit of the church and the schools. There were no schools in the country parishes but instruction in the catechism was given by the parish clerk at least every Sunday and by the pastor regularly before the service. The bishop examined the children on his periodic visits.

This close connection between the established church and the schools has continued, especially in the country, until this day, and religious instruction has a prominent place in the curriculum of the schools.

The social reforms inaugurated in the eighteenth century benefited the peasants especially, who had been reduced to serfdom in part of the country. A school commission was appointed in 1789. Its program called for the establishment of a Christian and civil school, where the children were taught in conformity with the evangelical Christian doc-

DENMARK, EDUCATION IN

trine, and where such knowledge and proficiencies were imparted to them as to make them useful citizens. Education was made compulsory and normal schools for the education of teachers were established. The country schools belonging to the public domain had already been established in 1721 by the Danish King Frederik VI, and 240 good school buildings had been erected. About 1739, under Christian VI, there were schools in all parishes. The school law of July 29, 1814, consolidated what had already been done.

Many of the country schools were small and had only poor equipment. The teacher was also the clerk of the church and had a small farm in order to add to his meager salary. There was only one teacher and one classroom in every school, and the instruction was confined to religion and the three R's.

The present school system in Denmark has grown out of the past as a natural development and has followed the general trend in education in other democratic nations. Rural schools are now well housed and equipped, and in the larger communities there are several teachers to each school. In the cities the school buildings now compare very well with the standard established in the United States.

When a position for a teacher is vacant in a community the vacancy is published in the papers and candidates send their applications to the local school board. The school board and the parents' association together nominate candidates and their names are submitted to the school commission (*Skoledirektoratet*) for the county (*Amt*). In the cities the board of aldermen appoints the candidates, subject to the approval of the State Department of Education. Teachers enjoy tenure to the age of 65-70, and cannot be removed except on the most serious charges.

The school law of 1938 opened the way for consolidation of the smaller country schools into larger, centrally located schools with better equipment and more teachers. The teachers then became instructors in one subject through the grades, instead of being teachers who followed the class from year to year.

There is danger that consolidation of schools may result in the disappearance of the country school as a cultural center of the rural community. This would be deplored by many because the close connection between

the home and the school, and between the teacher and the community, is considered the most valuable asset in the Danish school system.

The compulsory school age is from 7 to 14 years. The city schools follow more or less the pattern in other countries. When a child has gone through the elementary school he enters the first year of the secondary school (the intermediate school) at the age of 11. The secondary school has a course of four years and ends with an examination, which entitles the pupil, if he passes the examination, to enter a one-year course that gives him a certificate (*Realeksamen*); or he can enter the *Gymnasium*, where he graduates after three years and obtains a certificate that entitles him to enter the university (*Studentereksamen*). The *Gymnasium* has three lines of study: classical languages, modern languages, and mathematical and natural science. The *Realeksamen* qualifies for civil service apprenticeship in the railways, postal service, telegraph, and customs services. These public services are all owned and operated by the government. Having passed an additional examination, the student with *Realeksamen* can enter the Royal Veterinary and Agricultural College, the College of Dentistry, or the High School of Commerce. Entrance to the university also qualifies for the State College of Engineering. This system of free education from the common school to the university, with equal opportunity for all, is the result of the reorganization of the whole school system by the school laws of 1903. Before that time it was expensive to attend the private Latin schools, and the cathedral schools prepared students for the university. Now most of the private secondary and high schools have been taken over by the state or the municipalities by the act of March 20, 1918.

In 1937-38 less than 10 per cent of the children attended private schools. There were 4,498 elementary schools with about half a million pupils and 17,150 teachers (10,175 men and 6,975 women). In Copenhagen, the capital, parents who are in the higher income brackets have to pay a small monthly sum for the education of their children. In 1937-38 the government expenditures on elementary schools was about 48 million *Kroner*, and that of the municipalities

60 million *Kroner* (the *Kroner* = \$2680). Children who do not want to prepare for the professions generally leave the school at the age of 15 years. They are at that age confirmed in the church and begin to prepare themselves for their lifework. Many become apprentices and begin to work in a master mechanic's shop or in a business. They are apprenticed for 4 or 5 years and during that time have to attend evening classes in schools where they get theoretical instruction supplementary to their practical training. There are about 325 of these schools, with 35,000 students. The Technological Institute in Copenhagen, established in 1908, gives courses for artisans and manufacturers; courses for farmers are also given in the use of machinery. There is a department for each trade. About 8,000 students attended the institute in 1937.

The Folk Schools, secondary schools for adult education, have played an outstanding part in the development of modern Danish cooperative democracy. The idea for these schools was first developed by Bishop N. F. S. Grundtvig (1783-1872), who saw the need for a national and spiritual awakening of the Danish people through education during the tragic years of the Napoleonic wars. Christen Kold, the son of a poor shoemaker, was inspired by Grundtvig's writings, and in 1851, with Grundtvig's financial aid, he opened the first Danish Folk School "to teach young people to love God, their neighbors, and their country." It was a humble beginning—there were but fifteen students, all young men, who lived with Kold in an attic—but from this small beginning developed a movement that in 1937 comprised 58 schools with 5,700 students (2,800 men and 2,900 women).

The Folk Schools are subsidized by the government but are free of governmental control. They are not coeducational. There is a term of three months during the summer for women and one of five months during the winter for young men. The aim of these schools is to give the students a desire to work for the common good through cooperative effort. The schools were largely the cause of the spiritual and economic rebirth of Denmark after the disastrous war with Germany in 1864, after which they were established in great numbers. Their effect on

Danish life after World War II remains to be seen.

An attempt has been made to enlarge the principles of the Folk School and to apply them to the ideal of international cooperation in the International Folk School at Elsinore, founded in 1921 by Peter Manniche. Its object is to bring together men and women of many countries for the study of international relations, comparative culture, and languages.

There are two universities in Denmark. The larger and older is the University of Copenhagen, which was founded in 1479. The governing body is the *Constitutorium*, which consists of twenty professors elected by the faculty. The president, *Rector Magnificus*, is elected by the faculty for a period of two years. The administrator in charge of finances of the university is appointed by the Crown.

The students elect a student council, an advisory board in matters concerning the students. Instruction is open to all who have passed the entrance examination, and, except for a small registration fee, is free. The lectures are open to all. There are two terms: from September 1 to December 2, and from February 1 to June 7. The number of registered students is about 5,500, with 130 professors and instructors. The university has five faculties: theology, law and economics, medicine, arts, and science.

When the student considers himself ready he can present himself for the final examination for a degree. He is free to plan his course of study and to select the textbooks. Usually it takes from 5 to 7 years of study to qualify for the final examination. Those who pass their final examination with the grade *laudabilis* are entitled to submit a thesis to the faculty for the doctorate. If accepted, it has to be defended in public.

The university in Aarhus, Jylland, was founded in 1928 as an independent corporation and has about 1,000 students and 25 professors, with three faculties: medicine, law and economics, and philosophy and science.

The State College of Engineering in Copenhagen was founded in 1829, open to students with the entrance examination to the university. There is a small fee for the use of the laboratories. The college has four branches of study—chemical engineering, mechanical engineering, civil engineering, and electrical

engineering. The duration of the course is from 5 to 7 years.

The Veterinary School was established at the University of Copenhagen in 1773 and as the Royal Veterinary and Agricultural College in 1858. It has six departments: farming, veterinary and surgery, surveying, horticulture, forestry, and dairying. Other courses require the same qualifications as the university. The duration of study is from two and one-half years for the course in farming to five and one-half years for veterinary surgery. There are 21 agricultural schools, with 2,500 students and with courses lasting from 5 to 12 months.

The Commercial High School in Copenhagen has a two-year course and special evening courses for advanced study in commerce and trade. There are 120 other commercial schools throughout the country.

There are four state normal schools and 16 private normal schools for the education of teachers. Their graduates, after a four-year course, are qualified as teachers in the elementary and secondary schools. Teachers in the *Gymnasium* ordinarily must have a degree from the university. The Teachers High School in Copenhagen gives advanced courses to teachers. The government provides scholarships for advanced students at the university or in other countries.

Other educational establishments include the School of Dentistry, the Pharmaceutical College and the Royal Conservatory of Music, the Royal Academy of Fine Arts, and the Institute for Gymnastics and Schools for Navigation. Denmark offers many opportunities for postgraduate work, especially in the following schools: the Institute of Theoretical Physics and the Institute of Physiology, both endowed by the Rockefeller Foundation; the Finsen Institute for the study and cure of lupus and cancer of the skin; the Carlsberg Laboratories; the Institute of Biochemistry; the State Serum Institute; and many others. Information regarding these facilities for research work can be obtained from *Dansk Studie Oplysningskontor*, the University, Studiestraede 6, Copenhagen; *Anglo-Danish Students Bureau*, 98 Great Russell Street, London, W.C.1.; or the *American Scandinavian Foundation*, 116 East 64th Street, New York City.

The Royal Society of Arts and Sciences was

founded in 1742 to promote the historical, physiological, mathematical, and philosophical sciences by discussions and lectures, by the publication of scientific work and by the endowment of research. The society has two branches, one for history and philosophy with 30 resident members and with nonresident members not exceeding 60, and one for physical science and mathematics with 40 resident members and up to 80 nonresident members.

A.T.D.

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DENTAL CLINIC—See CLINIC, SCHOOL

DENTAL EDUCATION. The present system of dental education in the United States is the result of a long evolutionary process. As in medicine and law, the preceptorial or tutorial system was, until the 19th century, the method by which young men trained for dentistry. With the gradual development of the scientific foundation upon which dentistry rests, together with the accumulation of knowledge that could be reduced to an orderly form, it became apparent that a more comprehensive and more formal system was essential.

In 1840 the Baltimore College of Dental Surgery, acknowledged to be the first dental school in the world, was established, and as a privately owned institution set a pattern for the proprietary schools that sprang up later. In March, 1940, a centennial celebration was held at Baltimore. A volume of 1,061 pages records the addresses, scientific papers, and proceedings, which marked this important event in dental education.

In 1867, more than a quarter of a century after the first dental school, a new pattern was set which was destined to endure. Harvard University announced the establishment of a dental school closely integrated with its medical school. This action gave recognition to dentistry as a university discipline.

A significant fact today in the development of dental education is the complete disappearance of the proprietary dental school; all but four of the thirty-nine schools now in operation in the United States are integral parts of, or are affiliated with, universities.

Present Objectives of Dental Education. According to the report of the Curriculum Survey Committee of the American Association of Dental Schools, a study made possible by a grant from the Carnegie Corporation of New York, "... the program of undergraduate dental education should aim at training students in order that they may:

"(a) Be competent in the maintenance of oral health and the treatment of oral diseases, disorders, and deficiencies, with understanding and appreciation of the relationship between oral and systemic conditions in health and disease;

"(b) Cooperate effectively with persons engaged in allied fields of service;

"(c) Have interest in, and desire for, continuing professional study after graduation;

"(d) Practice dentistry with due regard for the social, economic and ethical relationship; and

"(e) Cooperate efficiently in community life."⁴

The Dental Course. The minimum educational requirement for admission to a dental school is the successful completion of two years of study in a liberal arts college. The college course must include a year's course in English, in biology, in physics, and in organic chemistry, and a half year's work in organic chemistry. Thirty-eight of the thirty-nine dental schools in the United States now follow these general requirements; the thirty-ninth requires three years of liberal arts work. Of the 1,784 graduates from the dental schools of the United States in June, 1942, 521—or 29 per cent—had a bachelor's or other degree before beginning dental study, and 174 were graduated from combined courses with both the bachelor's and the dental degrees; 74 had four years of college work; 350 had three years of training. In total, 61 per cent of these dental graduates had more than the minimum two years of work in liberal arts college. (These figures were compiled by the Council on Dental Education.)

In considering the problem of what type of man is best suited for dental training, mechanical ability all too often has received major emphasis. Students lacking in ability to master academic subjects often have been referred to dentistry with the belief that they would do better when working with concrete materials rather than with abstract concepts. The scope of abilities required today by the dentist is indicated by the opinion expressed in the Carnegie report: "Dentistry, represented by the great body of independent practitioners, must be intellectually vigorous, mechanically facile, esthetically felicitous, medically competent, ethically sincere, professionally keen, and socially altruistic."⁸

The normal professional course in dentistry covers four academic years. In a few schools the time may be shortened by individual students who elect to study in summer session or summer quarter. The curriculum is divided loosely into the preclinical or science courses and the clinical courses. The science courses include anatomy, physiology, chemistry, bacteriology, and pathology. Operative and prosthetic dentistry, orthodontia, and oral surgery are the major clinical courses.

For many years graduate courses for dentists have been available, especially in basic science fields, but enrollment has always been small. In the year 1939-40 only 126 students were working for a degree.⁵ One of the chief reasons for this is that many dental graduates who wish to work for another degree prefer the degree in medicine. In 1937-38, 45 graduate degrees were awarded, distributed as follows:

Master of Science in Prosthesis.....	1
Master of Dental Surgery.....	4
Master of Dental Science.....	21
Master of Dental Science in Orthodontics..	5
Master of Science.....	13
Master of Public Health.....	1

Postgraduate courses in dentistry vary widely in length and breadth. For graduates who wish to prepare for specialization, courses extending throughout one or two years are available. These courses are offered chiefly in the fields of orthodontia, prosthodontia, and oral surgery. Three schools offer courses in public health dentistry, aimed at preparing dental graduates for positions as directors of dental health in city or state departments of health. Upon completion of

DENTAL EDUCATION

these courses, certificates of proficiency are awarded. Short courses, the so-called refresher courses, are offered by the various dental schools, by dental societies, and by commercial interests.

Thirty-five dental schools confer the degree of Doctor of Dental Surgery (D.D.S.) upon candidates who successfully complete the professional course. Four schools confer the degree of Doctor of Dental Medicine (D.M.D.). The dental profession and state dental examining and licensing boards recognize no distinction in inherent values as between the two degrees.

Organizations Related to Dental Education. The *Council on Dental Education of the American Dental Association* consists of nine members—three representatives each of the American Dental Association, the American Association of Dental Schools, and the National Association of Dental Examiners. Its duties are to study conditions of dental education and to suggest to the American Dental Association methods by which these conditions may be improved. It is also the accrediting agency for dental education, and it is at present engaged in inspecting the dental schools of the United States for the purpose of rating them.

The thirty-nine schools of the United States and four schools in Canada are members of the *American Association of Dental Schools*. The purpose of this organization is to improve dental education in all its phases. The *Journal of Dental Education* is the official journal of the Association. The *Proceedings* of the annual session are published annually.

The *National Association of Dental Examiners* is a voluntary association of the members of the forty-nine state boards of dental examiners. Its purpose, broadly, is to raise the standard of methods of examining candidates for license to practice. It has no legal status.

The *National Board of Dental Examiners* is organized as a part of the American Dental Association. It conducts examinations in all parts of the country in the basic sciences and in the theoretical aspects of the clinical courses. It has no legal status but it issues to successful candidates a certificate of qualification which twelve state boards are permitted to recognize.

Licensure. Before a graduate of a recognized or approved dental school may practice his profession he must satisfy the legal requirements of the state by passing an examination to determine his fitness to practice. In some states the *state board of dental examiners* set up their own requirements for an approved dental school, and thereby become an accrediting agency.

Trends. "It is evident that dental education is entering a new cycle—one which is characterized by greater university interest and control, by expansion of research activities, and by intensification of interest in the public health aspects of dentistry." The rapid social changes now taking place are bound to involve the procedures of dental education. Harvard University has already started an experiment in expanding the requirements in medicine so that the M.D. as well as the D.M.D. degree will be awarded successful candidates. Another university, by making its entrance requirements and its first two years identical with that of medical school has made it possible for the dental graduate to earn a medical degree in an additional two years. The medical graduate also can earn a dental degree in two additional years.

From these developments "is emerging a step which is entirely logical and which should not be too difficult to realize. This step is the closer coordination of dental and medical education. To accomplish this satisfactorily will require that the barnacles of traditional prejudice be scraped off both dentistry and medicine, and that the problem be approached with a truly scientific attitude by both groups. Considerations of public welfare demand that this forward step be made."⁵ (See also MEDICAL EDUCATION.) L.M.S.M.

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DEPARTMENT MEETING — See **TEACHERS' MEETING.**

DEPARTMENT OF EDUCATION— See **UNITED STATES OFFICE OF EDUCATION.**

DEPARTMENTALIZATION. In order to secure greater specialization of teaching, many schools have been organized on a departmental basis. Many elementary schools have this type of organization in the intermediate grades, and a few schools departmentalize all of the grades. In a large departmentalized school, for example, one teacher may teach a single subject, such as arithmetic, to all of the pupils of the intermediate grades. In a small school the teacher may teach all of the pupils of the entire elementary school. In smaller schools which use departmentalization only in the upper grades, it is usually found that the same teacher is teaching two or three subjects each day to fourth, fifth and sixth grade pupils, or to seventh and eighth grade pupils. Departmentalization is the common practice in junior and senior high schools.

Commonly, the teacher in the departmentalized type of organization has a single room assigned to her which may be specially equipped to facilitate the teaching of her subject. The pupils in this type of school commonly move from room to room to receive instruction in the different subjects included in the curriculum.

Specialization in teaching has gained favor in elementary school organization during the past twenty years. The theoretical arguments both pro and con have been postulated by many writers. Those who argue on the basis of administrative feasibility favor departmentalization. Those who argue for the welfare of children versus the worshipping of subject matter are often opposed to departmentalization.

The principal argument for the departmental organization is that it brings the services of more competent persons to the school program and assures a more sequential and better ordered curriculum. The principal objections center in the type of curriculum which is fostered and the division of the child's program into many parts. The plan obviously assumes a subject curriculum in which the principal qualification for teaching is competence in the subject. This is held by many to be an inadequate and distorted view of the

function of teaching elementary school children. The plan is condemned because it divides the child's day into many small parts, not giving long, intimate contacts and close association with a single teacher.

The trend during the past decade has been away from departmentalization in the elementary schools. In the secondary schools it is still the prevailing system of organization. Such new curricular movements as the core-curriculum, integration, broad-fields curriculum (*qq.v.*) etc. attempt to modify traditional narrow subject matter boundaries, without sacrificing the needed specialization of the secondary school teacher. O.G.J.

DEPENDENT CHILDREN. In a broad sense the term "dependent" may be applied to any child whose parents do not care for him properly, and who, therefore, must look to society for support. Legally, a distinction usually is made between *dependent* children, whose parents *cannot* provide for them; and *neglected* children, whose parents *will not* do so. Thus, in some states, the transfer of a dependent child to a foster home is accomplished without the intervention of the Juvenile Court; whereas, a neglected child, under similar circumstances, would be brought before the court on the assumption that he is a potential delinquent. From the standpoint of child welfare, however, this distinction is somewhat artificial, since both types of children are dependent.

Causes of child dependency include illness, death, unemployment, or low earning power of either or both parents; homes broken by death, divorce, or desertion; and parental indifference toward, or rejection of the child (See **REJECTED CHILD**). War is also a major cause, and one of the chief activities of the American Legion is to care for the dependent children of veterans.

The most common approach to this problem in the past was to place dependent children in private or public institutions, and to prosecute wilfully neglectful or cruel parents. The more recent trend (based upon an application of psychology and psychiatry) is to consider the problem as one of social case work. It is recognized that a child's needs do not end with the furnishing of food, clothing, and shelter, but that, to develop normally, he must also have affection and emotional security. There is no adequate substitute for

the home in meeting this latter need; and, therefore, the present tendency in dealing with dependent children is to keep the family intact, if possible. This may be accomplished partly by benefits from Workmen's Compensation laws or by direct aid to mothers (mothers' pensions) which are now available in practically all states through the cooperation of the Federal Government under the Social Security Act of 1935. Some states still debar unmarried mothers from the benefit of such aid, but the Social Security Act makes no distinction in this matter. A desirable feature of mothers' pensions is that they not only allow dependent children to remain at home, but they also preclude the necessity for mothers to obtain gainful employment, thus being forced to neglect their offspring. Where the pension is insufficient to support the family, and the mother must work, day nurseries where small children can be properly cared for have been organized. If, despite these aids, the family cannot be kept together, the foster home is regarded as the next best solution. In homes where the child is unwanted, or where the alcoholism, immorality, or irresponsibility of parents are such as to be detrimental to his interests, placement in foster homes or institutions may be recommended. Foster homes are now generally preferred, but institutions occasionally may be more suitable if the dependency is to be temporary and it is undesirable for the child to become attached to another family. The majority of dependent and neglected children are still cared for in institutions, although these are coming to be regarded as a last resort. Despite their drawbacks they are valuable as centers for observation and research; are helpful in cases where medical treatment is required, and where it is undesirable to separate children of a large family. No one method of caring for dependent children will meet adequately all the needs in this field.

R.V.M.

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DEPOSITORY FOR SCHOOL FUNDS —See FINANCE, SCHOOL.

DEPRECIATION. Depreciation means loss in service value, owing to wear and tear of usage, physical decay, or obsolescence.

The rate of depreciation of a school building varies with the type of structure and the care and maintenance provided; it is computed by the following formula:

$$d = \frac{V_o - V_s}{n}$$

In this formula, d = annual depreciation, V_o = original cost of the building, V_s = the salvage value, and n = the life of the building in years.

A depreciation reserve is established by setting aside annually from income an amount equal to the estimated depreciation. This amount will be sufficient to replace the building at the end of its period of usefulness. Experience has taught authorities that it is sometimes difficult to protect such sinking funds against misuse, mismanagement, or loss; therefore many authorities in school finance recommend the replacement of school buildings through the issuance of bonds, if replacement cannot be met out of current revenue. (See FINANCE, SCHOOL.)

L.E.M. and M.F.S.

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DERIVED SCORE — See SCORES, CON-
VERSION OF.

DESCRIPTIVE METHOD (RESEARCH) — See RESEARCH METHODS IN EDUCATION.

DETERMINISM IN EDUCATION. The theory that mental abilities are purely innate and neither increased nor diminished by environmental influences may properly be designated as "psychological determinism." The application of this theory to the problem of changing human behavior, which is the basic problem of education, is analogous to such other applications of the deterministic hypothesis as the explanation of social, and

DETERMINISM IN EDUCATION

especially political, changes in terms solely of "economic determinism."

The influence of psychological determinism upon educational theory and practice has been particularly marked since the concept of "general intelligence" gained wide acceptance with the development of the so-called intelligence tests during the second decade of the 20th century, and especially since the convenient concept of the "intelligence quotient" was introduced to designate the relation between "mental age" and "chronological age." Since repeated tests seemed to indicate, for any one individual or any one group, a certain degree of constancy, the hypothesis that mentality was determined in a substantial measure by physical heredity was greatly strengthened, and since some exceptions to the rule of constancy could be satisfactorily explained by hypothesizing either faulty tests or variations or errors in the application and scoring of the tests, there was a clear tendency among psychologists toward the conclusion that physical heredity was, for all practical purposes, the only determining factor.

This was undoubtedly the attitude of most American psychologists, including educational psychologists, in 1921, when the publication of the results of the intelligence tests as applied to drafted soldiers in the Army camps in 1917-18 aroused wide public interest in the question of heredity *vs.* environment in the determination of mental traits. The organization and interpretation of the mass of data collected in this, the most extensive testing program up to that time, were clearly governed by the hereditarian hypothesis. The differences disclosed, for example, among soldiers from different sections of the country were ascribed solely to differences in the genes, with the correlative inference that differences in environmental or cultural stimulus and opportunity had nothing to do with them. The natural result was a wave of skepticism regarding the possibilities of effecting fundamental changes in human beings through the processes of education. By the same token, the whole theory of political democracy came into question.

Only a very few persons trained in psychology ventured to question the basic assumptions that were involved in the fatalistic conclusions drawn from the evidence. While these noneconformists were practically os-

traized from the psychological camp, their contentions and criticisms were sufficiently cogent to impel the National Society for the Study of Education to promote and sponsor a series of careful investigations on the relative influence of nature and nurture in the development of general intelligence. Other investigations, both in the United States and in Great Britain, were also undertaken, and in 1928 the Society published its 27th *Yearbook* reporting the studies carried on under its sponsorship and summarizing all other pertinent studies that had been reported up to that time.

The net result of these activities was both a definite clarification of the issue and the assembling of evidence clearly invalidating the assumption that general intelligence as reflected in the IQ is entirely unaffected by cultural or environmental influences, although a modified hypothesis to the effect that heredity plays the major role seemed to be just as clearly justified. The important outcome, however, was that the backbone of extreme determinism in education was broken. While educational and other environmental influences might operate within limits, it was demonstrated that their contribution, under the proper conditions, could be made both significant and substantial.

The investigations were continued during the following decade, with important improvements in techniques of testing and important refinements in the interpretation of results. In 1938, the Society published its second *Yearbook* (the 37th of the Society's series) on the nature-nurture controversy. In general, the conclusions drawn ten years previously were confirmed, with certainly a slight, and, in the opinion of some psychologists, a very considerable increase of evidence in favor of the theory of IQ plasticity, especially during the early childhood years.

At the present writing (1943) the extreme theory of determinism in education, characteristic of the thinking of the early 1920's, is no longer an issue. In part because of the conflicting ideologies that brought about World War II, the dominant interest in the United States shifted to educational measures aimed to correct the injustices, and more, the inhumanities, that have resulted from the use of the concept of psychological determinism as a fallacious justification of racial intol-

erance, racial inequities, and racial persecution. For whatever the influence of physical heredity may be in determining mental differences among individuals of the same race, the investigations so far reported fail signally to justify the assumption that there are irremediable native differences in mentality among the medians of racial groups. W.C.B.

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DEVELOPMENT — See GROWTH AND MATURATION.

DEVELOPMENTAL AGE—See SOCIAL AGE (DEVELOPMENTAL AGE.)

DEVELOPMENTAL SCALE—See INTELLIGENCE.

DEVIATION—See VARIABILITY.

DEVOTIONAL EXERCISES—See RELIGION AND PUBLIC EDUCATION.

DEWEY, JOHN (1859-¹⁹⁵²). John Dewey has been the most significant influence in the philosophy of education in America for almost fifty years. In 1896, two years after he assumed the post as head of the department of philosophy at the University of Chicago, he founded the University of Chicago Elementary School. Thus was expressed his faith in the necessary union of philosophy and education, which has been the inspiration of his work ever since. In the little brochure called "My Pedagogic Creed" (1897), he states that "education thus conceived marks the most perfect and intimate union of science and art conceivable in human experience."

His thought-system has most often been classified as experimentalism, but as in the case of many other penetrating thinkers—John Locke comes to mind—categorizing and labeling in the case of Dewey are dangerous conveniences. His has been a total view of man, society, and nature. In the reconstruction

of experience Dewey finds the unifying concept bridging the gap between art and science, theory and practice, education and philosophy.

In a great many books, articles, and addresses, spanning the years from 1896 (*Interest as Related to Will*) to 1938 (*Experience and Education*), Dewey has expounded his philosophy of education, stressing the meaning of education, the meaning of the school, of the curriculum, and of method.

Meaning of Education. He has sought to resolve some of the most perplexing inconsistencies and contradictions as to the meaning of education, its purpose and goal, its means and end. He holds that education is a process of living and not some kind of preparation for future living. In education, the process and the goal are one and the same; namely, the continuing reconstruction of experience in such a way as to add to the meaning of experience and give increased control over the process. This concept of reconstruction aiming at further reconstruction and at nothing fixed or definable has troubled many students of Dewey's educational philosophy. It seems vulnerable to the same refutation that he himself has adduced against the statement of the goal of education in terms of the harmonious development of all the powers and capacities; development toward what? However, Dewey's concept of democracy lends meaning to what would otherwise be a disturbing Heraclitean enigma. Greater democracy, in the sense of more intelligent sharing by each member of every group in the activities and interests of the group and greater sharing of all groups in the activities and interests of other groups—this is the ultimate goal which gives an otherwise lacking direction to the reconstruction of experience which is both process and proximate goal of education. The Industrial Revolution, with its concomitant social results, has convinced him of the need to stress cooperative (shared) living as a counterpoise to stark individualism.

Another contradiction with which Dewey's philosophy has concerned itself arises out of the two sides of the educational process, the psychological and the sociological. In educational thinking, these two sides have been conceived as antithetic, and various compromises have been advocated; e.g., education

should strive for the maximum of individual liberty consistent with social stability. Dewey's teaching here is that neither the psychological side nor the sociological side should be subordinated to the other, nor is compromise the solution. Granted a democratic society, the only possible adjustment is that which arises from putting the individual in complete possession of his powers. But these powers have meaning only as the individual is conceived as active in social relationships. Therefore, education must begin with the individual's capacities, powers, habits; but these must be interpreted in terms of their social equivalents. Thus Dewey reveals the weakness in all purely psychological definitions of education,—they stress development with no reference to the use to which the developed powers are to be put. But he also reveals the weakness in all purely sociological definitions of education,—they lead to a forced and external process of squeezing the individual into a preconceived social pattern. Neither meets the test of democratic education.

Meaning of the School. Dewey rejects the superficial idea that the school is a convenience for caring for children while they are growing up, or that it is a place where certain facts are to be learned. On the contrary, it is a form of community life, a process of living, where, to be sure, the complexities of social life must be simplified, purified, and balanced. The early school experiences, in order to secure continuity, must grow out of home experiences, for these have been among the most meaningful activities of the race. This implied parallelism between racial and individual development is a recurrent note in Dewey's writings, and has perhaps contributed with the more explicit formulations of other writers to keep the recapitulation theory alive.

The school must provide activities in which relations with others are prominent, for social and moral living come close to being synonymous with Dewey. In the same spirit, and for the same reason, the teacher must be a member of the school community, rather than an official appointed to impose certain ideas. The discipline of the school should be a community enterprise. In some of his writings, Dewey has brought this basic gospel of shared living to bear on some of the knotty

problems of school administration, academic freedom, relation of the public to the schools, and similar matters.

Curriculum and Method. The curriculum should be a gradual differentiation out of the funded capital of civilization and not a schematization of logically organized subjects, as with William T. Harris (*q.v.*). Dewey takes notice of the Herbartian doctrine of concentration (See HERBART), but only to reject it as "radiation." The organizing principle of the curriculum should be the social life of the child at his particular stage of development, with expressive or constructive activities at the center, because here he is "at work along the same general constructive lines as those which have brought civilization into being." This teaching is perhaps the most clearly recognizable influence of Dewey's philosophy on the contemporaneous progressive education movement (*q.v.*).

In method, the active side should precede the passive. Dewey's epistemology holds consciousness to be essentially motor, and knowledge to be a by-product of action. Even the emotions are the reflex of action and mental health can be stimulated only when emotions are exercised in corresponding activities. Some of Dewey's great predecessors, notably Froebel (*q.v.*), had stressed the indispensable nature of activities in all true learning.

Among the many other contributions of Dewey to the understanding of education, two should be briefly mentioned.

The first was his reconciliation of the two supposedly opposed doctrines of interest and effort. This reconciliation consisted in his showing that genuine *effort* can be invited only by connecting an activity with some end with which the learner has identified himself—some end in which he has an *interest*. Thus he dismissed the dichotomy between the schools of hard and soft pedagogy, and clarified the true meaning of motivation.

The second was his well-known analysis of effective thinking. This called attention to the importance of the problem in stimulating thinking, and of the need to locate and define the heart of the difficulty, to examine suggestions and possible solutions, to develop the bearings of each and to submit the most probable solution to the test of action or experimentation. This analysis supplied powerful impetus to the so-called problem method

of teaching, and to its derivative, the project method (*qq.v.*).

P.R.V.C.

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DEXTRALITY—See **HANDEDNESS**.

DIAGNOSIS, EDUCATIONAL. Educational diagnosis is the "procedure of determining the nature and causes of basic and general learning difficulties." While teachers have always been concerned with the attempt to discover and to correct the conditions which interfere with efficient learning, the teacher today can utilize a better understanding of the psychology of learning and a wider array of diagnostic procedures than were available to the teachers of even a generation ago.

The problem of discovering why one child has not learned to read or why another cannot multiply one fraction by another is sometimes so simple that the teacher may find the causes quickly; or it may be so complex as to baffle the clinician despite his utilization of ingenious testing devices.

Once it has been determined that the pupil is experiencing difficulty in learning, the teacher can begin search for the cause. As a necessary first step the teacher must find out whether this is an isolated difficulty or part of a more general problem. Is the pupil deficient in all subjects or only in arithmetic? Is he deficient in all phases of arithmetic or only in work with fractions? Is he deficient in all examples with fractions or only those involving the multiplication of fractions? etc. The more specific the teacher can be in describing the child's learning difficulty the greater is the likelihood of the teacher's being able to find the causes and to plan the program of remedial instruction.

A diagnostic test is one which is administered in order to discover the weaknesses or strengths of pupils in a specified portion of a particular subject or area of learning. Diagnostic tests, in general, cover a restricted section of a subject, e.g., capitalization or punctuation in English, but cover it thoroughly enough to reveal any errors that may possibly be made. A general achievement test may cover a whole subject, as American history, but only a few items can be included because the area is so large; on the other hand, a diagnostic test covers thoroughly a certain phase of American history. Since the purpose of a diagnostic test is to discover degrees of proficiency, no wide sweep of material is possible because many portions may be missed. One investigation found that more than a hundred chances for making errors were presented in working simple problems and exercises dealing with decimals; clearly, any diagnostic test that purports to measure the exact nature of the errors which the child makes when working with decimals must be limited in scope to exercises and problems of this sort and must ignore other types of arithmetic work. In other instances, the diagnostic test need not be so detailed since all that the teacher may need to know is the type of error made by the students. How fine the diagnosis should be depends, therefore, on the use that will be made of the test results.

The common method of devising a diagnostic test is to present a number of written exercises and then have pupils make the responses demanded. For diagnosing errors in punctuation, the teacher can ask the child to supply the correct punctuation in a series of printed or mimeographed sentences which involve various uses of the comma, quotation marks, semicolon, etc. After the exercises have been corrected and the mistakes tabulated, the number of errors and the kinds of mistakes made by the various pupils are revealed. Tests involving written responses deal chiefly with tool subjects and the mechanical aspects of subjects. There are several published diagnostic tests, especially in English and mathematics.

Another method of diagnostic testing involves performance of some kind which is usually more complicated than punctuation or the solution of mechanical problems. In

this instance, as the response may be given orally, the teachers must detect errors by observation. A good example of performance is that in which a pupil reads a selection orally and the teacher observes closely to detect the quality of the reading, including such factors as pauses, word calling, expression, and pronunciation. Methods for observing eye movements during reading belong under this performance technique. Having the student write a composition is a valuable aid to diagnosis in an English class because he is under no examination pressure and his errors are probably the ones he makes under normal conditions. In solving a problem or arriving at a conclusion, pupils are called upon to trace orally the steps taken; here again the teacher observes and diagnoses. Similar situations are found in singing, playing instruments, handling machines, speaking in public, and participating in sports requiring skilled performances.

In a sense, every response a pupil makes affords the teacher an opportunity to diagnose; the quiz, the hour examination, daily recitation, reports, notebooks, public speeches, and conferences are all response situations which show the shortcomings of instruction or the deficiencies in learning. Every teacher can and should use these informal kinds of tests to assist in continuous diagnosis.

Diagnostic tests reveal errors; they do not show the causes of these mistakes. Behind the errors may be carelessness, poor reading ability, lack of knowledge, low mental capacity, wrong interpretations, and similar psychological and educational shortcomings. It is therefore usually inadequate to base educational diagnosis and to plan remedial work solely upon the results of a diagnostic test. Where the pupil's mental ability may be responsible for his difficulties, an examination of his scores on intelligence tests may be helpful. A physical examination may reveal such physical defects as poor vision or poor hearing. An analysis of the child's work habits may indicate both the nature and the source of his learning difficulties. At times the pupil's personality difficulties may lead to a degree of emotional maladjustment which interferes with all school learning, or it may result in dislike for only a particular subject or teacher.

Although the modern teacher is well pre-

pared to discover and to deal with many instances of learning difficulties, he usually does not have the time, the facilities, or the training needed for the examination and treatment of complex cases in which the causes are hard to find and to treat. These are the children who are referred usually to such agencies as psychological clinics, educational clinics, guidance centers, personnel bureaus, and child guidance clinics. At such an agency the youngster is studied by psychologists, psychiatrists, social workers, and physicians. Some clinics are equipped to undertake the remedial program that is needed, while others merely plan the program and advise the teachers who put it into effect.

F.A.B. and W.D.C.

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DIAGNOSTIC TEST — See DIAGNOSIS, EDUCATIONAL.

DIALECTIC METHOD — See SOCRATIC METHOD.

DIALECTICAL PSYCHOLOGY — See PSYCHOLOGY, SCHOOLS OF.

DIARY, CLASS. Many teachers in elementary schools keep a detailed account of the educational activities in which their pupils engage during a school term. Such an account, usually referred to as a class diary, makes it possible for the reader to gain a reasonably correct impression of the scope and sequence of the activities engaged in and of the pupils' growth in skills, habits, concepts, and appreciations.

The class diary, though used in both the traditional school and the child-centered school, is not only used more frequently but also serves a more specific need in those schools that do not adhere strictly to formal courses of study.

In the traditional school, it is customary for teachers to be expected to adhere closely to a prescribed course of study. After consulting the syllabi, teachers indicate in a plan book the material to be taught during the several periods of the day. At the end of each day, any deviations from the stated plan are indicated in the plan book. To assure a

policy of strict adherence to the prescribed courses of study, the teachers are required each week to submit their daily plans for the following week to the principal or supervisor for approval. In this way, the school administrator is certain that the pupils are being provided the experiences prescribed for each grade.

Recently, not only in the child-centered schools but also in schools of the traditional type, both teachers and pupils have been given more freedom to choose the activities in which they will engage during the term. Syllabi, when used, serve as guides and not as prescriptions. Teachers are encouraged to experiment with both methods and curriculum materials in order to provide a program which will come closer to meeting the individual needs and interests of their pupils. In the absence of prescribed syllabi, a teacher who exercises her freedom in the selection of activities to be engaged in by her pupils must also be ready to defend her classroom program at all times, since she is held strictly accountable for the educational growth of her pupils. The class diary probably is the teacher's best single source of tangible evidence in support of her program.

In some schools teachers are encouraged, and in many instances required, to keep class diaries for the use of other teachers who may wish to use them as a source of additional knowledge of materials and methods of instruction. It is not uncommon for teachers with little or no experience in teaching and without the guidance of prescribed syllabi to be required to keep class diaries for the purpose of evaluating their work at the end of the term. Frequently, the class diary is filed in the school library or principal's office to be used by teachers of the same group during later terms as a help in gaining a better understanding of the educational experiences in which their pupils have engaged previously. As a means of interpreting the philosophy and work of the school to the public, the class diary is invaluable. (See PUBLIC RELATIONS, SCHOOL.)

Since it is impossible to record all classroom happenings and their results, the contents of a specific diary record in final form are usually selected in terms of the main purposes for which they are intended.

No matter for whom the diary is intended, the narrative account giving the step-by-step

progress of the class in meeting the goals of the school program is helpful in providing a basis for an understanding of the work of the class. The narrative account may contain daily entries of the activities of the class or it may be simply a summary of the activities as they developed. A descriptive account of the units of work, projects, or problems studied during the term is particularly helpful to the reader, no matter what may be his purpose. In addition to showing the step-by-step progress in these activities, the teacher's evaluation of the experiences is valuable, especially to teachers who read the report to increase their knowledge of methods and materials of instruction.

The class diary in final form, as it is presented to the reader, may contain a variety of materials in addition to the narrative account of the classroom activities. Samples of the pupils' work, such as original stories and poems, drawings and paintings, and arithmetic and other subject-matter papers, may be included as evidence of the quality of work done by the group, or they may be used to illustrate points referred to in the narrative account. Lists of books read by the pupils show the extent and quality of their reading. Photographs of pupils at work on various activities can be used to illustrate methods of work in the classroom or points emphasized in the narrative account.

Although trips or excursions taken by the class naturally are mentioned in the narrative account, some teachers prefer to treat these separately for the purpose of emphasis. While it does not seem necessary to include the day's schedule of activities for each day of the term covered in the diary, samples of a typical day's work, as well as the schedule of an atypical day, are sometimes helpful in giving an accurate picture of the work of the class. Some teachers include in the final form of their diaries a list of the concepts, skills, habits, and appreciations developed during the term. Frequently, samples of tests are included to show one of the methods used by the teachers in evaluating the growth of her children. As evidence of growth in habits and appreciation, the responses or actions of the children, as observed by the teachers, are sometimes described in detail.

The entries concerning day-by-day activities may be made by the teacher, may be made by the class but written by the teacher, or,

in one of the higher grades, may be made by a pupil. The daily entries usually include a schedule of the day's work. This may or may not be accompanied by a summary of plans made or the work accomplished each day on the unit of work in progress. The regular daily entries or notations are characteristic of this type of diary, which make it somewhat similar to the log kept on board a ship. It is probably for this reason that such a record is sometimes referred to as the class log.

W.V.N.

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F. G. MACOMBER, *Guiding Child Development in the Elementary School* (American Book Co., New York, 1941), chs. II and III.

DIFFERENCE, STATISTICAL — See SIGNIFICANT DIFFERENCE.

DIFFERENTIATED ASSIGNMENT—See ASSIGNMENTS.

DIFFICULTY OF TEST ELEMENTS.

The scores obtained by a group of pupils on a given test depend not only upon the ability of the group, but also upon the difficulty of the items included on the test. It is, therefore, important that the difficulty of test items be controlled in order to secure the best possible measure of achievement. In general, test items should be selected for difficulty in such a way that the average score obtained on the test is approximately one-half of the possible score. This does not mean, however, that each item should be failed by fifty per cent of the group, thus placing each item at the same level of difficulty. When a test is constructed with a view to its being used in several grades, for example, a standardized achievement test in arithmetic which is intended for grades III to VIII, it is clearly impossible to have the average score of fifty per cent at each grade level on which the test is used.

It is also necessary to think in terms of the use to which the test results are to be put. The usual instructional test should represent the level of difficulty which the teacher thinks it desirable for the class to achieve. The teacher-made test may well set a standard of 100 per cent as the goal to be reached by the student; in such a test the difficulty value of the items must necessarily make it possible, statistically, for the students to reach the goal. If the test is being used to select pupils of superior attainment in order to award schol-

astic honors, test items should have a very high level of difficulty, in order to discriminate more adequately among the superior pupils at the upper end of the scale. If the test is being used to isolate pupils of very poor attainment, items of low difficulty should be included in order to measure the performance of the poorer students with greater accuracy. When tests are being used for diagnostic purposes, the level of difficulty of the items included is of only secondary importance. More urgent is the necessity of testing all relevant skills and knowledge, regardless of the level of difficulty of the items used.

A difficulty scale is one in which the items comprising the scale are arranged in order from easiest to hardest. The level of difficulty, or difficulty score, of an item is ordinarily obtained by determining the percentage of individuals who solve the problem or who answer the question correctly. A person's score on such a scale may be computed by taking either the most difficult problem solved or the total number of correct responses. J.J.

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DIOCESAN HIGH SCHOOL—See ROMAN CATHOLIC EDUCATION.

DIOCESAN SUPERINTENDENT OF SCHOOLS.

The diocesan superintendent of Catholic schools is the executive officer of the bishop and the diocesan board of education. He represents diocesan leadership in Catholic educational endeavor and in relations with public authorities. His chief task is to establish high standards within the school system of the diocese without in any way encroaching on the prerogatives of pastors or religious superiors. His duties are quite similar to those of a state superintendent of public instruction, but he does not enjoy the same degree of power in enforcing regulations, since many bishops do not delegate full authority to the diocesan superintendent. In 1942, of the 112 dioceses in the country, 95 listed a diocesan superintendent of schools. (See ROMAN CATHOLIC EDUCATION.)

F.M.C.

DIPHTHERIA—See COMMUNICABLE DISEASES OF CHILDHOOD.

DIRECT METHOD (in Character Education)—See CHARACTER EDUCATION.

DIRECT METHOD OF TEACHING FOREIGN LANGUAGES. To employ the term *direct method* is to imply that some methods of teaching a foreign language are *indirect*. It is obvious that a direct method of learning to swim is to get into water of sufficient depth and move arms and legs to the desired purpose in the actual medium. An indirect method would be to take calisthenic exercises on dry land because there are somewhat similar bodily movements in swimming.

We employ the term *natural method* for the way a child learns his mother tongue as he listens to his elders make certain sounds in connection with certain objects, actions, and situations, and as he gets the idea and succeeds eventually in imitating the sounds with similar results. It is evident that this method of learning is direct, since no medium exists except the language being learned. A deaf-mute would learn directly also, except that his symbols would be visual, the only medium of expression in evidence to him, instead of aural.

Let us think, however, of a person who already has acquired a large set of concepts, each with its abstract symbol, both aural-oral (as he hears or utters the proper sounds) or visual (as he sees the printed symbols, whether or not he utters or *thinks* the sounds at the same time). If, when subjected to foreign speech in connection with objects, actions, or situations, he gets the idea and acts accordingly, then he has comprehended directly in the foreign medium. At first he must identify the idea with his own meaning-carrier, his native word uttered or conceived inwardly, unless it is a new concept, in which case the new word can very well become the meaning-carrier. When later he speeds up the process so that the foreign word (whether uttered or thought, however incorrect phonetically) carries the meaning with no reversion to the mother-language symbol, the learner is "thinking in the foreign language."

Suppose the person who is subjected to printed symbols in the foreign language in connection with objects, actions or situations, gets the idea and acts accordingly. He can see words on a sign in a show-window, for example, or point to the words on a menu and be served the desired foods in a restau-

rant. Direct learning has taken place; but the oral accompaniment, if any, has been according to previously learned phonetic systems. It is obvious that a person could learn a foreign language visually by direct method and verbalize it by his native symbols with results comprehensible only to himself. Nevertheless he could comprehend and act as well as a person who verbalized the symbols by the foreign phonetic system.

We must therefore divorce "direct method" from the requirements of an oral approach; it may be a visual approach as well. The "direct principle" is the same, however, for both approaches, namely that the medium of language experience must be the foreign symbols, even though the inward identifiers (in the learner himself; not expressed by the teacher or any accompanying agency) are in the mother tongue until the new symbols become sufficiently familiar by sight or sound to carry the meaning. Hence, we must hyphenate our terms and say "direct-oral" method (or "direct-aural" as we think of teacher or learner), direct comprehension of speech; or "direct-reading" method, direct comprehension of print.

It is clear then that by the direct method the learner must have an actual language experience without any preliminary study of grammar or phonetic (indirect method procedures). He must comprehend in terms of ideas and words he already possesses and connect the new symbols to the old concepts. If the situation is familiar and near to his experience, if easily recognized cognates and later, previously learned foreign words, provide contextual association, and if objects and actions dramatize words,—words capable of such dramatization—and if new words are suitably repeated, direct learning occurs. Out of this meaningful experience, grammar (the forms and relations of words) and pronunciation (the new verbalization) are organized inductively, practiced and assimilated.

If the teacher presents the new text solely to the learner's ear, the method is "direct-oral or -aural"; if the learner's eye may follow the printed text while the teacher presents the sounds to his ear, the act of reading is effected: the method is "direct-reading".

In the United States, the direct method in its oral approach has had a great vogue, at least in theory. It has compelled lip-service.

even though in practice it has not been entirely satisfactory. The theory may be sound, but conditions in American schools make its use difficult. In Europe, where it originated, teachers are well prepared in oral skills through travel and study in foreign countries, and the courses are long enough to secure good results (generally at least twice as long as the average in the United States). In the United States these conditions do not obtain. Since two years seems to be, rightly or wrongly, the accepted period for modern-language study, it is doubtful whether the direct-oral method is the best in the average situation. If used at all, conditions seem to require considerable adaptation to local circumstances.

In general, where the four-fold aim of reading, speaking, writing, and understanding is the accepted goal of foreign language teaching, some elements of the direct method are used, specially for the oral-aural skills. More often, some "oral practice" is used in combination with other grammar and reading procedures, as the occasion demands, the whole being called the eclectic or "complete" method. The *Modern Foreign Language "Study"* (q.v.), on the other hand brought the reading method into prominence with principles of learning no less direct, as the best method of attaining an early reading knowledge in the prevailing two-year foreign language course. (See MODERN FOREIGN LANGUAGES, TEACHING OF.) J.B.T.

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DISABILITY—See HANDICAPPED CHILDREN; SPECIAL DISABILITY.

DISARRANGED SENTENCE TEST—See OBJECTIVE TESTS AND EXAMINATIONS.

DISCIPLINE. The term *discipline* refers to the quality or state of orderly individual conduct gained through training in self-control and in habits of obedience to socially approved standards of thought and action. This implies an adequate understanding of right conduct, the formation of desirable habits and attitudes, and ready adherence to such standards as are just and necessary. It

includes the socialization of behavior, the manner of working and living together, and the subordination of individual aims to group aims. It provides for individual as well as group welfare, encourages not only individual freedom but also the willing acceptance of necessary restraints, and enables one to acquire self-mastery as he grows toward the ideals of a democratic society.

This modern conception of discipline stands in rather sharp contrast to its traditional meaning. The difference between the two conceptions is less marked in their educational objectives than in the source and method of control. While both aim at good order in the classroom, the immediate aim, according to the older conception, was prompt obedience to the teacher's commands and unquestioning compliance with established rules and practices. Today the aim of discipline is the establishment of good habits, right attitudes, and the development of a wholesome personality and upright character in individual children. According to the older and more restricted meaning of discipline, control of conduct was external to the individual, imposed from without, sometimes by force. According to the newer and broader conception of discipline, the source of control is largely within the individual. Wise management and just government had the effect of producing good order, although imposed by the teacher. Now good order tends to be secured through cooperative control, guided experiences, the use of good judgment, and an abundance of democratic good will. This provides for much freedom in action and growth into liberty.

The changing meaning of discipline makes use of the positive rather than the negative aspects of control. According to the older conception, discipline was largely negative, in that attempts were made to secure and maintain control of pupil conduct through corrective measures, punishments, and restraints. Sometimes it was used to supplement or bolster positive controls. Such measures were educative only as they contributed to the reform of the offender. Used properly, they could be made an integral part of the school's constructive educational regime. Such usage, combined with the positive aspects of social and individual control, makes discipline constructive and gives it a new meaning. Phases of this combination, were

DISCIPLINE

the effective use of classroom management, individualized work and study activities, and all leisure and school-life activities which establish desirable habits or develop wholesome attitudes in children.

The newer conception of discipline is supported by studies of the learning and socializing activities of children. The findings of psychology indicate that children learn by experiencing, and that interest, freedom from worry, and satisfaction with one's work contribute positively to successful achievement. The child becomes self-reliant and self-controlled only as he has many opportunities to choose wisely and to act properly. Good behavior and self-control improve with practice in doing right things at the right time and in the right way. It is a wholesome discipline for children to do very hard things so long as they remain happy and successful in overcoming the difficulties which obstruct their purposes.

The psychological basis for discipline requires the individual to have many valuable mental and emotional as well as physical experiences. The mere performance of overt acts of a disciplinary nature is not sufficient. Acceptable participation in group life must be accompanied by ready acceptance and willing obedience to group standards to count for self-discipline. The individual must understand the justice of restraints placed on his conduct for a specific good purpose and agree that they are necessary and right. He must surrender voluntarily something personal for the sake of some greater gain accruing to him in due time. Cheerful compliance with established rules and willing adherence to one's consciousness of right are essential to wholesome self-discipline.

The social aspects of discipline are fully as important as the psychological. The child is a member of various class and school groups, clubs, and other organizations. In a democratically organized school group, pupil members are encouraged to participate effectively by helping to develop their conduct standards. Having done this, they accept responsibility for living up to them. When a member of a class group fails in this, the same group may disapprove of his conduct and restore him to his place of honor and respectability only after he has proved himself worthy. This teaches the value of cheerful obedience to group standards.

This illustration of social control within a school group reveals how indirect disciplinary control may become. The source of control is not so much in the immediate authority and influence of the teacher as in the regulations developed by pupils and the life and spirit of the school. A pattern for this is found in any well organized social center where the established ideals and customs of the community serve as proper controls of conduct.

With this change in the source of control, respect for the authority of the teacher remains an individual and social necessity. The teacher retains the responsibility for determining the limits within which child decisions may be made. He assumes the position of leader as he guides their discussions or advises them individually.

Today the teacher seeks to provide many opportunities for children to discuss conduct problems, to share in group thinking, and to make the choices and decisions of which they are capable. Such practice helps them to plan better for themselves and for each member of the group. It helps them to grow more independent in school and to gain in self-control.

While developing the ability to discipline himself, it is important that the child has purposes which he accepts, the accomplishment of which he regards as essential to his best interests. It is equally important that he has activities which he understands and in which he wishes to engage. Discipline becomes effective as he attempts to accomplish his purpose and attain the desired proficiency.

Some children are regarded as disciplinary problems. These pupils are usually the ones who differ from others of their group because of certain undesirable habits, personality traits, or behavior in the home, school, or community; whose conduct interferes, or is likely to interfere, with the individual's fullest development and usefulness socially, educationally, or hygienically; and whose behavior may result in more serious handicaps of one sort or another in later life. Many such problems have been created by the free and extensive use of force and external control to the neglect of training in right conduct and the practice of self-discipline. In this connection the teaching problem is one of reform. Its solution requires special treatment

for each individual case. Some school systems provide special classes for disciplinary cases. Among them are classes for delinquent, emotionally unstable children, and socially maladjusted children. They are frequently organized in schools or school systems with a sufficient number of behavior problem children to form one or more classes.

The treatment of disciplinary problems today reflects an increasing tendency to regard misconduct as a symptom of maladjustment rather than merely as an offense to be punished. Though the educator and the mental hygienist do not deny that a specific instance of misconduct may sometimes have little psychological significance and that a recurrence of the incident can be prevented by the pupil's recognition of its unpleasant consequences, punishment alone usually is an inadequate way of modifying socially undesirable behavior patterns. Thus if an elementary school child is inattentive because the topic that is being discussed in class is far beyond his range of interest and his mental level, little lasting gain can result from giving him a low mark every time he is found to be inattentive. Similarly, if the adolescent boy who is emotionally insecure becomes a conceited show-off, annoying everyone by the air of superiority he displays but does not feel, the teacher's sarcasm will improve neither his personal adjustment nor his behavior.

This attempt at finding the causative factors which lead to misconduct and at planning the correction of serious disciplinary problems presents a challenge to the teacher and the psychologist. In some instances, the causes may be so involved that it may be necessary to employ the services of a child guidance clinic (*q.v.*). In other instances, the experienced teacher who understands children and is aware of their emotional needs and problems may be able to guide their readjustment without enlisting other professional assistance. While it is too much to expect that the teacher's use of intelligent disciplinary procedures will forestall the possibility of the student's becoming a neurotic, it is possible for a wise and sympathetic teacher to help correct emotional difficulties that otherwise would become an increasingly serious obstacle to wholesome living. (See MENTAL HYGIENE.)

Despite the emphasis which has been

placed on misconduct as a symptom of the pupil's personal difficulties, any corrective program that focuses attention solely on the child's emotional life may also prove to be inadequate. The correction and treatment of misconduct often necessitate other types of adjustments. Thus a method of teaching which presents little that is challenging to pupils or which makes little provision for stimulating pupil activity may be itself a cause of misconduct. Similarly, a curriculum that is largely unrelated to students' needs, interests, and abilities may be a source of conduct problems. The teacher need not become an amateur clinical psychologist to improve the discipline of his class; he often can accomplish more by being a better teacher.

Social forces, too, have their influence on discipline. The high school student who senses his family's need for his earning money may find it difficult to adjust to the high school which seems to stand between him and his conception of his duty. Such national crises as widespread unemployment or war are reflected in the attitudes of both teachers and pupils. The standards of the family and the demands of the gang may also create situations which lead to disciplinary problems.

Conduct usually is evaluated from the adult's point of view so that the child is considered "good" when he causes the adult, teacher or parent, a minimum of inconvenience. Some psychologists have objected to the use of conduct as a means of evaluating the child's adjustment to his environment because "good" conduct and "bad" conduct are often vague terms, the meanings of which depend on the adult and on the factors in the situation. Thus the same pattern of behavior may be considered good by one teacher and bad by another. Partly as a result of this changed attitude toward conduct, reports to parents now tend to omit any letter grade for conduct as though it were a distinct trait. Instead, there is a trend toward the substitution of a number of more specific and more descriptive expressions, such as "Works well with others." (See RECORDS AND REPORTS.)

Discipline today is viewed as a means of achieving fundamental educational goals. Good discipline is more than a means of getting students to learn more mathematics, to speak more effectively, or to understand French better. It may be a means of develop-

ing attitudes and personality traits that persist long after the more factual school learnings are forgotten. The teacher who has insight into child and adolescent psychology and the ability to get along well with his students has two of the most important assets that make for effective leadership in the classroom. It is small wonder, then, that good discipline and effective teaching are so highly correlated, for both stem from the same roots.

C.M.R.

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DISCRETE MEASURES—See CONTINUOUS MEASURES.

DISCUSSION METHOD. This method designates the give and take experience that is found in a live learning group. Questions are raised by any member of the group; answers are attempted by other members and are supplemented by still others, the teacher or leader included. The basic problems may well be raised by the teacher or leader.

The value of spontaneous and interested discussion lies in the fact that it implies vital learning activity; in fact, this type of discussion is the overt manifestation of vital learning.

The discussion procedure is exposed to a number of pitfalls. First, the teacher must make sure that the students have possession of the facts on which a profitable discussion may be based. Discussion is group thinking out loud and thinking can proceed only on the basis of adequate data. Without such data discussion is a mere beating of the air. A spirited preliminary discussion may well be used in raising problems, i.e., in the assignment, but before solutions are attempted, much careful observing, experimenting, and reading needs to be done.

The second danger is found in making discussion formal; having discussion for the sake of discussion rather than for the sake of learning. Unless discussion rises spontaneously in response to challenging problems, it had better be left alone. Too much precious time may be wasted.

The third danger lies in letting discussion go too far afield on tangents. All of us have attended meetings where about everything except the issue at stake was discussed. To hold the discussion to the point is not easy. What seems relevant to one may seem irrelevant to another. The teacher or leader must guide with his best judgment, remain courteous, yet firm.

A fourth danger is found in the difficulty of bringing a lively discussion to a timely close. Once a discussion has been well started, it tends to go on and on. Again the teacher must use his best judgment, be courteous and firm.

(See PANEL DISCUSSION.)

W.R.

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DISEASES OF CHILDHOOD — See COMMUNICABLE DISEASES OF CHILDHOOD.

DISMISSAL, TEACHERS'—See TEACHERS' CONTRACTS.

DISPERSION—See VARIABILITY.

DISSERTATION—See THESIS.

DISTRIBUTED REPETITION — See LEARNING.

DISTRIBUTIVE EDUCATION. The larger department stores have had formal training programs for their sales workers for many years. Collegiate-level schools of retailing have been established at The Prince School in Boston, New York University School of Retailing, the University of Pittsburgh, and elsewhere. These schools, operating in close coordination with department stores, have been unusually successful in giving managerial and in-service training to distributive workers. These developments augur well for the ultimate establishment of merchandising as a profession.

DISTRICT SCHOOL SYSTEM

Numerous attempts have been made to establish salesmanship courses in the secondary school but they usually became formal academic courses and therefore the numbers enrolled soon dwindled. Since there are well over five million distributive workers in the United States, the desirability of school training for this area of service is evident.

The passage of the George-Deen Act in 1937 by the United States Congress has ushered in a new era of distributive education. Approximately \$1,200,000 has been made available to the several states for training in distribution. Within a few years this sum must be matched by the state and local governments. Therefore by 1947 approximately two and one-half million dollars should be available annually for distributive training. The federal regulations limit the use of this money to in-service and cooperative types of training programs. The initial stages of organization have now passed and, while most of the money is still being spent in department store training, increasing funds are being used in the retraining of small store merchants and clerks. This of course has necessitated a new technique of teaching and the development of new bodies of subject material.

H.A.T.

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DISTRICT SCHOOL SYSTEM. The district school system is the pioneer school organization in America. It was founded in colonial times to meet the needs of the widely scattered rural settlements for the establishment of small community schools. From these early beginnings it has persisted with some modification and is today the type of school organization most frequently found in rural areas. Although the district form of school organization has served a useful purpose in the past, there is a growing realization that a reorganization is necessary in order to provide the best educational facilities adapted to a growing complex civilization.

Size and Number. In 1933 there were 26 states in which the district was the basic unit of school administration. In these states there were about 119,000 school districts ranging in size from about five square miles in Illinois and New York to 360 in Nevada.

The average school membership per district ranged from 44 in Nebraska to 649 in Ohio. The number of teachers per basic unit varied from two in Kansas, Nebraska, South Dakota and Montana to 21 in Ohio.¹ It is thus apparent that when some of the larger cities are excluded, the district system is essentially a rural school organization maintaining one- or two-teacher rural schools and town and village schools.

District School. The district school is usually a one- or two-teacher ungraded school in rural areas or a graded elementary and high school in villages and towns. The United States Census Bureau classifies the population in the 'open country and in towns and villages of less than 2500 as urban. Using this classification as the basis, in 1936 the school population, children five to seventeen years of age, was about equally divided between urban and rural schools. The urban children were taught in approximately 27,000 schools; whereas the rural children were taught in 213,000 schools. There were about 364,000 teachers in the urban schools and about 461,000 teachers in the rural schools.²

Administration. The schools of the district are governed by a local board of education or school trustees usually elected by the people of the district. In many districts in rural areas the board of education administers the school directly, whereas in others, especially consolidated rural districts, villages or towns, a superintendent of schools is employed who carries on the duties of administration. Boards of education that administer their schools directly are usually assisted by county superintendents or supervisors employed by union or supervisory districts. Legally the board of education is the local governing body and has almost complete charge of the schools of the district subject only to statutory limitations. W.C.R.

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DIVERSIFIED OCCUPATION PLAN

—See COOPERATIVE PART-TIME DIVERSIFIED OCCUPATION PLAN.

DIVIDED PERIOD PLAN—See STUDY.

DOCENT—See MUSEUMS.

DOMESTIC RELATIONS COURTS—

See JUVENILE AND DOMESTIC RELATIONS COURTS.

DOMESTIC SCIENCE, TEACHING OF

—See HOME ECONOMICS, TEACHING OF.

DOMINICAN REPUBLIC, EDUCATION IN—See CENTRAL AMERICA, EDUCATION IN.

DOPOLAVORO, OPERA NAZIONALE—See ITALY, EDUCATION IN.

DOUBLE-TRACK SYSTEM—See PROMOTION.

DRAMATICS. Dramatics in education may be defined as the art of acting and producing plays by amateurs. It has long had a lively place in the schools both as a curricular and extracurricular activity. Courses in dramatics, dramatic art, or play production are found in the curriculum of the secondary school, where they are frequently offered as electives in the Departments of Speech or English. Colleges and especially universities of the present day often support departments in which a sequence of courses—such as Dramatic Interpretation, Play Production, Directing, and Stage Lighting—is offered. At both the secondary and higher levels extracurricular groups are fostered to produce one-act and longer plays. Such groups sometimes also produce pageants, which are written frequently by teachers and students in commemoration of an event or historical personage of special local interest.

In the elementary school various dramatic forms, including short plays, pantomime, and marionette and puppet shows, are used for public entertainment, assembly programs, and classroom aids. The vigorous growth of the activity program has caused an increase in the use of dramatic forms. For example, a progressive school may teach a unit in literature dealing with the Arthurian Legend by means of writing, costuming, and staging a play about King Arthur and the Knights of the Round Table.

At the other end of the educational age scale, adult education also makes much use of dramatics. Here, as at the other educational levels, dramatics are frequently resorted to as a means of raising money as well as for instruction and pleasure. Summer camps, settlement houses, cantonments, and churches are only a few of the organizations that make use of dramatics. In short, dramatics have become so important an educational activity that the term *educational dramatics* is well established in the vocabulary of educators and others.

Within recent years the educational world has witnessed the rapid growth of the dramatic tournament, an activity in which groups come together for the purpose of presenting plays in competition. If the tournament is large—covering a state, for example—elimination contests precede the final contest. The plays are judged and awards made to the winning groups. Dramatic tournaments have been initiated and promoted by Little Theatres, drama leagues, rural groups, universities, colleges, and dramatic fraternities.

Dramatics as an educational medium and activity are justified on many grounds. Doubtless they increase the self-direction of the participants and quicken their creative and appreciative powers. They tend, too, to deepen and widen interests as well as to identify particular individual abilities. As a successful dramatic performance cannot be realized without cooperation, the individuals concerned have to learn to work together to attain a common objective. Dramatics thus become an outlet for the worthy use of leisure time. Shy and diffident individuals, especially, may be helped in personality development through dramatics. Improved voice and diction, too, are frequent resultants. Certainly, dramatics provide the educator with an opportunity to challenge the student's imagination and intelligence. J.F.B-1

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DRAMATIZATION — DRILL

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DRAMATIZATION. Dramatization in education means the acting out of conceptions that are being studied by the pupils. It may be either informal and spontaneous or it may be formal, leading up to a carefully planned and rehearsed performance. It is the function of both to clarify understanding and to enrich emotional appreciation.

Informal dramatization, now frequently called dramatic expression, has an especial appeal to young children, but skilful teachers are using it to good effect throughout the secondary school, particularly in English and the social studies. Children get added meaning from imitating the work of the carpenter or the mailman, while a high school class gets both understanding and emotional appreciation by reliving the emotional intensity of the meeting between Grant and Lee at Appomattox.

Dramatization, in a narrower sense, means the writing, learning, rehearsing, and acting of a play. This consumes so much time and effort that it cannot well be used frequently, but, used at strategic points, its educative value may be high. Teachers may well plan to have every pupil take part one or more times in the writing and producing of a play before he graduates from high school. Dramatization leads not only to a vivid conception of subject matter but also to an insight into the drama, the theater, and the work of the playwright.

For maximum educative effect, the topics chosen for dramatization must lie within the subject matter studied. A high school class in English literature worked *The Lady of the Lake* into a play and gave it during commencement week. Everyone connected with the project considered the time and effort well spent. A sixth grade class in American history dramatized "The Settlement of Massachusetts". It is true that the writing and rehearsing of the play and the making of the costumes and scenery consumed much time, but the educative results were commensurate. The full understanding of early American history that was gained had a leavening effect throughout the course.

W.R.

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DRILL. Drill is the process of repetition to make automatic and permanent certain associations or responses. Drill follows the acquisition of understanding in order to facilitate the recall of those items we expect or desire to use habitually. A common misconception as to the meaning and purpose of drill is evidenced by such expressions as, "The pupils do not understand this; they need more drill." What is needed in such instances is not drill but assimilative experience—a variety of experiences out of which understanding comes. This is not drill, it is interpretative experience—analyzing, comparing, evaluating, and sensing relationships. When facts are comprehended they are partly fixed in mind, but they may easily fade out unless the associations are more firmly fixed by drill or through frequent use. The teacher's purpose in drilling is to assure the automatic or ready recall of associations needed for various reasons.

Drill should be distinguished from practice as a learning procedure, although they have much in common as forms of adaptation. In drill the terminal outcome is a mental association that can be reproduced automatically; in practice the terminal outcome is a motor activity or muscular coordination which is also freed from the necessity of conscious control. The term practice is also applied to the attainment of certain adaptive abilities like problem-solving, etc. Drill is concerned with the fixation of specific associations; practice is concerned with improvement of a motor coordination or application of knowledge. In drill the accuracy of the first associations is of crucial importance; in practice one begins with the approximate form or application and gradually perfects the adaptation. Thus, one *drills* on spelling, number combinations, content to be memorized, but one *practices* writing, drawing, singing, or the application of knowledge.

In carrying on drill, teachers should keep in mind the following factors that affect the efficiency of recall: (1) the accuracy of first impressions, (2) the vividness of the impressions, (3) the frequency of associations, (4) the recency of associations, and

(5) the effect of the learning experience, with respect to the pleasure or satisfaction derived.

To assure efficient drill activities, there should be effective motivation to secure proper attention and the readiness or "mind-set" conducive to maximum effort. This readiness hinges upon the pupil's realization and appreciation of his need for each particular drill. The proper choice of devices will contribute to the effectiveness of drill exercises. Where the material to be drilled on is not intrinsically interesting to the child, the teacher may use such extrinsic means of stimulating interest as keeping records of individual progress, playing educational games, as a form of drill, or enlisting the appeal of competition among groups of approximately equal ability.

Though drill has been thought of traditionally as being in terms of the group as a whole, it is becoming increasingly an individual rather than a group procedure. Since pupils vary in the degree to which various associations have been made automatic, there must be corresponding adjustment of the material to be drilled on. With the growing emphasis on individualized instruction, there is greater need for familiarizing the students, as well as the teacher, with the principles underlying effective drill and practice. In many schools the students are helped to understand and to apply such principles as these: (1) The student must be sure he understands the exact association before he drills. He should make prompt, accurate responses, but should not guess. A student who does not understand the forms of a verb conjugation in a foreign language, for instance, is not ready for drill on these forms. (2) A drill session should be a period of concentration without digressions or interruptions, which militate against habituation. (3) In a drill period there is usually learning under pressure. Where speed of response is desired, as in typewriting, the rate of response should be increased gradually but not at the expense of accuracy. (4) Drill should begin promptly and aggressively. (5) That method of recall should be used that is most appropriate for the particular associations as they are to be used. Thus, spelling should be drilled on by writing the words rather than by spelling them aloud. (6) Drill periods should be short and distributed over a considerable period of time. If the drill is prolonged too long, fatigue ensues. It is better to have students

form the habit of setting aside five or ten minutes daily for drill purposes than to rely on a longer period at the end of each week.

T.M.R.

DRUG ADDICTION—See NARCOTICS.

DUAL SCHOOL SYSTEMS. A national system of educational organization that consists of two or possibly more schemes of educational institutions which parallel each other in terms of the age groups served but which provide different types of training is referred to as a dual school system. For the great mass of children and youth destined for unskilled, skilled, clerical, or minor administrative jobs, many European countries maintain a system of institutions which provides a rudimentary education, primarily in basic language and mathematical skills, followed by periods of vocational training in trade or continuation schools. The parallel system offers its pupils initial training in basic language and mathematical skills or it may take pupils after they have had such training through private tutoring or in the folk schools and then provide a training exclusively in academic subject matter, which is prerequisite for further study in the colleges, universities, or specialized technical schools. Pupils may transfer from the folk school system to the academic program in many countries, but only at an early age, usually when about nine to eleven years old.

In many countries, the dual system begins on the secondary level, or higher. For instance in Germany all children attend a *Grundschule* for the first four school years and then are placed into one of several types of secondary or continuation schools according to their aptitudes. In France the period of common schooling can extend up to the age of eleven or twelve, after which the more gifted children attend one of three types of secondary schools—the technical, modern, or classical—and the less gifted, a form of continuation school. In the U.S.S.R. the period of common schooling is extended until the children are fifteen years old when they enter apprentice schools, *Technicums*, or university preparatory schools. In Italy, the common schooling extends to the age of eleven for the less gifted and fourteen for the more gifted, after which differentiation begins. Dual systems extending all the way down to the earliest age can be found in England and in

Denmark, where a traditional private school system runs parallel with a newer public school system. The private school system originated as a system for the élite, distinct from that for the folk or common people.

There are many arguments for and against a dual system as compared with the prevailing ladder system of the United States. It is argued that a dual system based on a distinction between the classes and the masses is undemocratic; on the other hand, it is also true that a single ladder system of public education lends itself well to indoctrination by the political group in power. It is claimed that a dual system based on the ideal of putting each child into a school that will best train him along the lines of his aptitudes is more realistic; on the other hand it is claimed that the unitary ladder system is more flexible in that it seeks to discover aptitudes through guidance and a system of electives rather than to channel children into a path before their aptitudes can be truly discovered. However, the fact that most school systems are neither completely of the ladder nor of the dual type indicates that the trend is to make use of the virtues of each system. The trend in some European systems of raising the age of common schooling before differentiation begins, and the trend in the United States of introducing specialized secondary schools can be cited as examples of the merging of the two plans of educational organization. (See EDUCATIONAL LADDER.)

The term dual school system has still another connotation in the United States. Even though all of the states have compulsory education laws and public school systems, there are private schools at all levels. It is possible for a student, if he so wishes, to receive his entire education from kindergarten through the university in private institutions. Regarded in this light, education in the United States may be described as a dual system. However, because of state controls over the private schools in curricula and standards, it is generally possible for a student to transfer with little difficulty from one system to the other.

Attempts have been made by advocates of a single public school system to legislate non-public schools out of existence on the grounds that education in a democracy is a state function with its basis in the will of the electorate, and not a matter of individual prerogative.

However, the famous Oregon Case [*Pierce v. Society of the Sisters of the Holy Names*, 268 U. S. (510) (1925)] affirmed the opposing argument that primary control over a child's welfare rests with the parents, and that even though the state may require the parents to see that their children receive an education and attend school regularly up to a certain age, the parent has the right to choose whether his child is to be educated in public or in private schools. (See PARENTS, RIGHTS OF.) G.S.

DUAL TYPE OF ORGANIZATION OF SCHOOLS — See ADMINISTRATION, SCHOOL.

DUCTLESS GLANDS—See ENDOCRINE GLANDS.

DUPLICATING MACHINES. There are two principal types of duplicating machines in use in today's schools. The first of these, the mimeograph machine, utilizes a stencil made of thin fibrous paper coated with paraffin which is cut by the keys of the typewriter. This stencil is placed upon a rotating cylinder which allows ink to seep through the holes in the stencil so as to be transferred to the special mimeograph paper. The principal advantages of this form of duplication lie in the clarity of the copy and the large number of copies of material which may be run off from one stencil. The principal disadvantages of the mimeograph are the initial expense of the machine and the cost of the stencils.

The second type of duplicator employed in schools is of the gelatin type. With this duplicator the material to be reproduced is typed or drawn on the master paper with a special transferable ink. This master copy is then laid face down on a gelatin pad which absorbs most of the ink from the paper. Copies may then be made by placing paper briefly against the gelatin. The best gelatin duplicators also utilize a cylinder which is revolved by a handle, foot pedal, or motor. The principal advantages of this method of duplication are its relative inexpensiveness as compared with the mimeograph, the possibility of using a number of different colors on the same page, and the ease with which drawings and handwriting may be duplicated. Many workbooks and maps may be obtained

DYSPHONIA

ready-made for gelatin duplicators. The principal disadvantages are the limited number of legible copies which may be drawn from one master copy and the purple ink which is characteristic of typewritten copies.

The duplicating machine has become an accepted feature in most schools. It is used to provide copies of worksheets, laboratory and shop instructions, drawings, diagrams, charts, illustrations, tests, and, in many cases, school newspapers.

W.H.H.

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DYSPHONIA—See **SPEECH CORRECTION**.

E

E. A.—See EDUCATIONAL AGE.

E. Q.—See EDUCATIONAL AGE.

ECOLE UNIQUE—See FRANCE, EDUCATION IN.

ECONOMIC GEOGRAPHY—See GEOGRAPHY, TEACHING OF.

ECONOMICS, EDUCATIONAL. The field of knowledge and research which embraces the problems lying between the two organized fields of economics and education. Rather than a combination of the two fields, educational economics deals with a specialized area lying at the border land between the two fields, and is somewhat comparable to such other specialized areas lying within or between organized fields as physical chemistry, mathematical physics, physiological psychology, economic history, social biology.

Some of the problems in the area of educational economics are the occupational distribution of workers; the training of workers for the various occupations; the amount and kind of specific vocational education needed; the relation of education to individual income and to the income of society; the relation of education to consumer problems—diets, housing, recreation, security; and others.

The field of educational economics is an appropriate one for students of educational administration and teachers of vocational education. Courses in this area are offered in teachers colleges and in colleges of education in universities.

W.C.R.

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ECONOMICS, TEACHING OF — See SOCIAL STUDIES, TEACHING OF.

ECUADOR, EDUCATION IN. Organization. As in almost all the Latin American countries, education in Ecuador is centrally administered. It is free and compulsory on the primary level. Schools that come under governmental control are lay and secular in character.

Educational facilities extend from the kindergarten to the university. The kindergarten has two grades and exists only in the principal cities. Primary schools are of two kinds, the rural primary school—the most common educational service—of four grades, and the urban primary school of six grades. Graduates of the primary schools interested in a secondary education have the choice of attending either the *Escuela Complementaria* (Continuation School) or the *Escuela Normal Rural* (Rural Normal School) if, for financial reasons, they cannot attend one of the *Escuelas de Enseñanza Media* (Intermediate Schools) in the urban centers: *Colegios de Segunda Enseñanza* (Secondary Schools) and the various Normal, Technical, and Professional Schools.

The *Escuela Normal Urbana* (Urban Normal School) offers a six-year course of study: four devoted to scientific and liberal studies, and two devoted to pedagogy and practice teaching. The *Colegios de Segunda Enseñanza* (Secondary Schools) follow the same plan and program as the *Normales Urbanas* during the first four years. The last two years are for specialization. The general baccalaureate degree does not exist. University education involves a course of study that may last from four to seven years depending on the requirements of the profession chosen. The University confines its activity largely to the preparation for the higher professions, and is little concerned with investigation and research.

The problems of greatest importance are the following: the necessity for balancing administrative centralization against the sharing

of power and responsibility with local organizations; the need of a board of education (*Consejo Superior de Educación*) to help the Ministry of Education in technical aspects of its work; the need for coordinating and unifying education from the kindergarten to the university; the achievement of greater stability and a more progressive spirit in education by freeing it from the influence of politics of the day; the need for a more comprehensive and generous educational budget, a need that will be realized more and more as the duty to liquidate illiteracy is understood.

Significant Educational Movements. Those educational movements of a political and administrative nature have generally been transitory, since the work of one regime has almost always been destroyed by its successors. Those brought about by professional and technical stimuli have had more lasting results.

Ecuador has had two German pedagogical missions—the first from 1914 to 1919 and the second from 1921 to 1924. The first introduced considerable reform in methodology in the primary schools which brought with it the rigorous formalism of the “*planes de las lecciones didácticas*” (plans for didactic lessons) favored by disciples of the sense realists. The second mission gave some impetus to the “*escuela del trabajo*” (activity school) but more in theory than in practice. Verbalistic teaching continued to hold sway. However, the enthusiasm and good will of teachers, strengthened by study and contact with the new education, have given renewed impetus to the active and practical orientation of the schools. The *Congresos Pedagógicos Nacionales* (National Pedagogical Congresses) have made excellent contributions to the development of education through discussions of vital problems. The influence of the ideas of Dewey, Kilpatrick, Washburne, and Kandell has been especially significant.

The influence of the United States has recently become very significant. While the structure of the educational system is mainly of French and Spanish origin, the practical and psychological orientation of the Ecuadorean educational leaders is in large part due to the influence of the United States. Teachers are encouraged to complete their professional training in the United States.

Numerous educators from the United States have visited Ecuador and left a deep impression. There exists an Ecuadorean Section of the New Education Fellowship of which Professor Julio C. Larrea is the first president. The *Inter-American Pedagogical Review—Nueva Era*—published in Quito, has enlisted the collaboration of many prominent educators of all countries of the Western Hemisphere and has attained hemispheric prestige.

Statistics. Ecuador has a population of three million. Its percentage of illiteracy is not large when compared with that of other Latin American countries. According to the latest report of the Minister of Education, there are among the children of school age (6-12) 101,351 literates, 95,682 semi-literates, and 130,209 illiterates. There are 3,114 primary schools in the republic, of which 2,470 are state, 342 municipal, and 302 private. The number of primary teachers is 6,404—4,489 state, 644 municipal, and 1,271 private. There are 19 Secondary Schools (*Colegios Secundarios*) with 416 instructors and 6,565 students, four Urban Normal Schools with 100 instructors and 1,284 students, four universities with 225 instructors and 1,885 students, two Higher Institutes of Pedagogy (*Institutos Superiores de Pedagogía*) with 33 instructors and 145 students.
J.C.L.

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EDUCATION, COST OF—See FINANCE, SCHOOL.

EDUCATION, HISTORY OF — See HISTORY OF EDUCATION.

EDUCATIONAL AGE (E.A.). A subject age (arithmetic age, reading age, etc.) is a score, expressed in years and months, which corresponds to a given raw score on a standardized test in a particular subject. Thus, if a pupil's raw score on a standardized arithmetic test is converted into an arithmetic age of twelve years, his arithmetic score is equal to that of the average twelve-year-old. When a battery of achievement

tests is administered, the various subject ages may be averaged and expressed as the *educational age* (also called the *achievement*, *accomplishment*, or *attainment age*), which can be used to compare the pupil's average ability in the various subjects with that of other pupils.

When the pupil's educational age is divided by his chronological age, we get his *educational quotient* (*E.Q.*), which is a means of evaluating his average achievement in comparison with that of others of the same chronological age and is thus a measure of the rate of educational progress.

Similarly, the pupil's achievements may be evaluated in terms of his mental ability. The *achievement quotient* (*A.Q.*), sometimes termed the *accomplishment* or *attainment quotient*, may be computed by dividing the pupil's educational quotient by his intelligence quotient, or by dividing his educational age by his mental age. The latter method of computing *A.Q.* can be used only when both ages have been determined on approximately the same date; in other cases, the educational quotient and the intelligence quotient must be used. If a pupil's *A.Q.* is below 100, his achievement is not so high as the average of pupils of his mental level. If his achievement quotient is above 100, he is working above the average of pupils of his mental level. To some extent, *A.Q.*'s above 100 result from inadequate norms for the subject matter tests used. (See *NORMS*.) J.J.

Reference.

W. S. MONROE, *An Introduction to the Theory of Educational Measurements* (Houghton Mifflin Co., New York, 1923).

EDUCATIONAL CLINIC—See **CLINIC, SCHOOL**.

EDUCATIONAL CORPORATION. The public school is a state institution, completely and solely subordinate to the plenary power of the state legislature, subject to state constitutional limitations. The state can create and dissolve school districts at will, and without the consent of the inhabitants who gain no vested rights against the state in any one form of organization. The state may alter district lines, redistribute district property, grant and withhold state school moneys, and dictate internal district organization or type of school board membership. Neither the

school district nor its inhabitants have any rights to any form of school organization except as given by the state legislature.

When the state sets up a school board, it almost universally (although not necessarily) sets it up as a separate corporation, distinct and apart from the municipal organization (city, etc.) within which it may be found. Legal proceedings involving the school must be brought against the school board as a separate legal entity, an educational corporation, and not against the municipality. The school officers, whether elected or even if appointed by local municipal officers, are state officers.

Basic to all discussions of the status of the school corporation, therefore, is the fundamental legal concept that the school board or school corporation is a creature of the state, subject, in all regards short of constitutional limitations, to state control and mandate.

H.N.R.

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EDUCATIONAL FOUNDATIONS—See **FOUNDATIONS, PHILANTHROPIC; FOUNDATIONS OF EDUCATION**.

EDUCATIONAL GUIDANCE — See **GUIDANCE**.

EDUCATIONAL LADDER. The system of education in the United States has been referred to as an educational ladder because the various levels of the school system are open to virtually all the graduates of the next lower school. Thus, in the United States, all children attend the elementary school regardless of whether they will become members of a learned profession or unskilled laborers. Similarly, all elementary school graduates may enter the secondary school. Theoretically, at least, the various rungs of the educational ladder, from the primary grades to the university, are open to all pupils who have the requisite ability and interests. This educational ladder is in sharp contrast to the dual school systems (*q.v.*) found in many other countries where the kind of elementary education to which the child is admitted may determine the type of schools for which he will be eligible in later years. Some elementary school graduates, for example, may never be able to pre-

EDUCATIONAL LADDER

pare themselves for higher education simply because of the kind of elementary school they have attended.

Although education in the United States is a state rather than a national responsibility, the educational organizations found in the various states usually follow a similar pattern. The educational system of this country consists of a single common school program beginning at ages four to six, depending on the provision of nursery and kindergarten grades, through eleven or twelve years of schooling in an administratively integrated system of elementary, junior, and senior high schools, climaxed by college, university, or professional school. Admission to each administrative unit is based on completion of the required work in the preceding unit, and no discrimination in admission is made on the basis of social, economic, or political standing. A complete system of education through the secondary level is publicly supported and controlled in all the states, and most states also provide for higher education at publicly supported institutions.

The democratic spirit expressed in the educational ladder continues to dominate education in the United States—all primary grades children do climb the first rung of a ladder that leads to the university—but the increasing differentiation of educational institutions makes the educational ladder an inadequate symbol of public education. In some of the larger cities the elementary school graduate may choose from so wide a variety of secondary schools that it is inaccurate to depict the secondary school simply as a single rung on the educational ladder—above that of the elementary school and below that of the college. The graduates of some specialized high schools, for example the vocational high school, are as ineligible for admission to a liberal arts college as are the graduates of some European secondary schools ineligible for entrance to the university.

Even for those students whose abilities and interests are along academic lines, there have been so many changes on the elementary and secondary levels that the picture of a ladder gives an erroneous impression of the successive steps they take as their education progresses.

In the latter part of the nineteenth century, the predominating system was the 8-4

plan, eight years of elementary school followed by four years of secondary schooling. However, each of the two types of schools had developed along such distinctive lines in curriculum and methods of teaching that there was a conspicuous lack of articulation between the two, and the gap between the elementary school and the high school brought with it mounting problems of pupil maladjustment and consequent educational waste. In addition, it was felt by educators and psychologists—President Eliot of Harvard, G. Stanley Hall, John Dewey, and many others—that the secondary period of schooling should begin earlier. A 6-6 plan was advocated which would shorten the elementary school period to six years and start the secondary school two years earlier. However, during the period from 1900 to 1909, the emphasis shifted from the 6-6 to the 6-3-3 plan in which a separate intermediate organization, the Junior High School, was inserted between the elementary and the high school. This idea, actually the first variation of the old 8-4 system to find widespread application, found rapid favor, until in 1938 about 32.1% of the pupils enrolled in secondary schools were enrolled in a divided junior and senior high school plan (6-3-3 and variations). Since 1934, however, the trend seems to be toward the earlier 6-6 system, or undivided junior-senior high school and the number of students enrolled in such systems is steadily increasing (from 18.9% of the students in secondary schools in 1934 to 24.4% in 1938). In spite of this emphasis on the reorganization of education, the percentage of students enrolled in the traditional 8-4 plan remains higher than in either the 6-3-3 or 6-6 plans, even though it is decreasing (from 51.2% of the students in all secondary schools in 1934 to 43.5% in 1938).

Another earlier variation was the 7-4 plan, which reduced the total elementary-secondary span from twelve to eleven years on the theory that educational waste in the elementary school could best be lessened by shortening that period one year. For a time in certain Southern states this plan was in wider use than the 8-4 plan. The schools of Salt Lake City revived interest in this plan in 1926 when they changed from a 6-3-3 to the 7-4 plan.

The problem of lack of articulation be-

EDUCATIONAL LAW AND LEGISLATION

AGE	GRADE	8-4-4	7-4-4	6-3-3-4	6-3-3-2-2	6-6-4	6-6-2-2	6-8-2	6-4-4	4-4-4-4	
22	17										
21	16										
20	15	COLLEGE	COLLEGE	COLLEGE	COLLEGE	COLLEGE	COLLEGE	COLLEGE			
19	14			JUNIOR COLLEGE	COLLEGE	JUNIOR COLLEGE	EIGHT-YEAR SECONDARY SCHOOL	"COMMUNITY COLLEGE"	"COMMUNITY COLLEGE"		
18	13										
17	12										
16	11	HIGH SCHOOL	HIGH SCHOOL	SENIOR HIGH SCHOOL	SENIOR HIGH SCHOOL	JUNIOR	JUNIOR				
15	10			HIGH SCHOOL	HIGH SCHOOL	SENIOR	SENIOR				
14	9			JUNIOR HIGH SCHOOL	JUNIOR HIGH SCHOOL	HIGH SCHOOL	HIGH SCHOOL				
13	8										
12	7										
11	6	ELEMENTARY SCHOOL	ELEMENTARY SCHOOL								
10	5										ELEMENTARY
9	4										
8	3										
7	2										
6	1										
5	K	KINDERGARTEN	KINDERGARTEN	KINDERGARTEN	KINDERGARTEN	KINDERGARTEN	KINDERGARTEN	KINDERGARTEN	KINDERGARTEN	PRIMARY	
4	PRE										

SOME VARIATIONS OF THE EDUCATIONAL LADDER.

tween the secondary school and the college led to plans of reorganization on the upper level of the ladder similar to those on the middle level. With the introduction of the junior college (*q.v.*) and its variations, the traditional 8-4-4 plan (the 8-4 plan plus a four year college) was replaced in some places by the 6-3-3-2 (six year elementary school, three year junior high school, three year senior high school, and two year junior college), 6-6-2 (six year elementary school, six-year combined junior-senior high school, two year junior college), and the 6-4-4 (six year elementary school, four year junior high school, four year combined senior high school-junior college) plans, to each of which two years of "senior" college are added above the junior college. A 6-8 plan, in which an eight year secondary school covers all levels from junior high school through junior college, is a recent addition (Pasadena, California).

The trend seems to be away from the multi-school system as exemplified by the 6-3-3-2 plan toward one of fewer units, such as the 6-6-2 type. However, it must be remembered that no one plan has as yet assumed dominance over the traditional 8-4-4 organization. What the system of the future

will be is difficult to predict. Some educators have even ventured to predict that with vertical expansion (the addition of kindergarten and nursery school) the prevailing type of the future may be a 4-4-4-4 (four years of early childhood education, four years of elementary education, four years of high school, four years of community college) with "senior" colleges and professional schools for those who have completed the sequence. (See also ELEMENTARY EDUCATION; JUNIOR HIGH SCHOOL; SECONDARY EDUCATION; JUNIOR COLLEGE; LIBERAL ARTS COLLEGE.)

G.S.

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EDUCATIONAL LAW AND LEGIS-

LATION. Perhaps to a greater degree than with most other governmental functions, the legal status of the school has been developed in the halls of legislatures rather than in courtrooms. Owing to the nature of the relationship between the federal and the state

governments, whereby the federal government was one of delegated powers and the state government of residual powers, education traditionally has been a state function in the United States. The state legislature, as the repository of the power of the people of the state, in the absence of constitutional provisions to the contrary, was the natural place to seek for legal clarification of the school's position.

It is fundamental American law, therefore, that subject to constitutional restrictions, the state legislature has plenary and complete power over the school, both as to ends to be accomplished and the means with which they are to be accomplished.

However, there are certain constitutional limitations upon the otherwise plenary power of the legislature. The Federal Constitution has placed some restrictions upon state action in general which are applicable to legislative action in school matters. For example, the Fourteenth Amendment provides, in part, that "no state . . . shall deprive any person of life, liberty or property without due process of law". The Supreme Court of the United States has frequently invalidated educational legislation on the ground that the state abridged someone's constitutional rights without "due process of law". For example, when Oregon attempted to compel all children to go to public schools, thereby legislating out of existence all parochial schools, the Supreme Court declared the statute unconstitutional as unduly abridging the rights of parents to make a choice among schools (*Pierce v. Society of the Sisters of the Holy Names*, 268 U. S. 510 [1925]); and when the state of Nebraska, in common with some ten other states during the First World War, attempted to forbid the teaching of foreign languages in public or private schools, the Supreme Court ruled the legislation invalid as depriving both parents and teachers of their liberties without due process of law. (*Meyer v. Nebraska*, 262 U. S. 390, 43 S. Ct. 625 [1923]); on the other hand, statutes requiring all students to submit to vaccination were held not to be in contravention of constitutional rights (*Jacobson v. Commonwealth of Massachusetts*, 197 U. S. 11, 25 S. Ct. 358 [1905]).

Another Federal constitutional guaranty is the contract clause, providing that no state may lawfully impair the obligation of con-

tracts. In the famous Dartmouth College Case the Supreme Court held that a royal charter to the college, being a contract, could not be revoked by the state (*Trustees of Dartmouth College v. Woodward*, 4 Wheat. 518, 4 L. Ed. 629 [1819]). More recently, the Supreme Court held that the state of Indiana could not repeal a statutory teacher tenure act that had become contractual in nature (*State ex rel. Anderson v. Brand*, 303 U. S. 95, 58 S. Ct. 443 [1938]).

Still another Federal constitutional guaranty is the equal protection clause, providing in substance that all citizens must be treated equally and without discrimination. Under the aegis of this clause, the Supreme Court has recently held certain wide-spread state legislative practices as unconstitutional for failing to provide equal facilities for Negroes in publicly-endowed professional schools. (*Missouri ex rel. Gaines v. Canada*, 305 U. S. 337, 59 S. Ct. 232 [1938].)

Apart from limitations to be found in the Federal constitution, there may be some restrictions in the state constitution, common among which is the mandate that the legislature provide for the establishment and maintenance of a uniform system of public schools.

Nevertheless, subject to constitutional limitations, the state legislature has supreme and plenary control over the school system. It may determine the ends of education, in terms of the curriculum, the type of schooling, the textbooks to be used, or the type of student admitted. It has similar complete control over the means to be used for achieving the ends it has set up: means of financing (ranging from complete state support to no state support), the qualifications of teachers and of students, obligations to non-residents, election of officers, mode of contracting, type of building, and other such basic considerations.

Statutory development of the school system has been along two distinct but related lines: direct legislative action, and delegation of authority to make rules and regulations to a state school board or state superintendent. It is well to remember, furthermore, that not all school legislation appears in the school code; important provisions may crop up in the penal law, the election law, civil rights law, and other seemingly unrelated laws of a more general application.

Educational legislation has reflected the American tradition that the schools belong to the people, not to the educators. State legislators, consisting as they do of elected representatives of the people, have therefore acted not only on such general problems as the organization of the school system, the age to which education should be compulsory, and the type of teacher to be employed, but also on such technical questions as the content of the curriculum. Teachers and administrators, who should presumably be qualified by training and experience to decide curricular questions have been told, by means of legislation duly enacted, that they may not eliminate certain subjects from the curriculum, for example community civics, or even certain topics, such as the effects of alcohol. Similarly, some school systems have been forbidden to include certain subjects, for example, evolution or communism. Though most American educators regard it as perfectly proper for legislatures to act on broad questions of public educational policy, there is increasing objection to legislation which concerns administrative or pedagogical problems which can be solved better by professional educators than by legislators who may be more responsive to political pressures than to the findings of educational research.

H.N.R.

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EDUCATIONAL POLICIES COMMISSION. When the National Education Association and the American Association of School Administrators jointly established the Educational Policies Commission in 1935, they assigned it the following functions: the stimulation of thorough planning by the teaching profession over a period of years; the promotion of progressive changes in educational theory and practice; the evaluation of suggestions for improvement of education; the extension of knowledge and use of the best practices throughout the country; and the improvement of cooperation among groups contributing to educational progress. During the short life of the Commission, it has made a profound impression on the thinking and procedure of the teaching profession and has influenced to some degree the lay public.

The Commission has published some books for the purpose of expressing its philosophy of education and recommendations of teaching procedures. The best known of these books are probably those constituting the American democracy series: *Unique Function of Education in American Democracy*; *Purposes of Education in American Democracy*; *Structure and Administration of Education in American Democracy*; *Learning the Ways of Democracy*; and *Education of Free Men in American Democracy*.

In 1939-40, the Commission sent a staff of six men to make a study of civic education as practiced in ninety secondary schools in twenty-seven states representing different parts of the United States. The report of the findings, containing case studies of actual practices in the schools, is in the book, *Learning the Ways of Democracy*, which is among those listed above. To carry the recommendations of this book to all parts of the United States, the Commission has held several regional conferences.

W.A.S.

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EDUCATIONAL PSYCHOLOGY. Educational psychology had its beginnings in the attempt to apply to a number of educational problems the results and techniques developed by psychologists in their investigation of mind and behavior. It soon came to constitute a separate field, particularly as empirical methods were developed to compare various methods of teaching, to trace the development of the child, to measure abilities and personality traits, and to discover environmental influences on learning and behavior. Historically, the central topic of educational psychology is learning—its nature, antecedents, conditions and results.

Since educational psychology is meant to form part of the professional training of teachers, a good text on the subject offers to teachers principles of guiding the learning process in such a way that the outcomes de-

sired will eventuate, in so far as possible. Educational practice, however, cannot be founded upon educational psychology alone. Though, as a result of research carried on in close contact with the school, educational psychology has suggested many innovations and changes in practical education, it cannot determine the aims of the school nor the environmental factors which actually exist.

Experiments in educational psychology prove futile if they do not relate to actual purposes and conditions. With changing emphases in educational objectives, much of the older experimental work and the generalizations derived therefrom have become obsolete. Principles of learning with respect to the memorization of verbal facts will not apply to the solution of problems or the development of initiative. There is the added fact that psychological research, both in its techniques and particularly in its conclusions, is always influenced by psychological theory at the same time that it itself modifies psychological theory. This means that texts in educational psychology, though referring to research experiments for their evidence, may be quoting conclusions based on a psychology that is no longer held, or about which there has arisen much controversy. The student often must learn, therefore, how to reinterpret the data presented. In any case he must beware of looking only for specific conclusions in a field where principles have not been established in such a universal fashion that they can be stated as "laws." The references given below are recent books with somewhat varied viewpoints and not completely overlapping content in the topics treated. (See such articles as CHILD PSYCHOLOGY; INCENTIVES; INTELLIGENCE; LEARNING; MENTAL HYGIENE; and PSYCHOLOGY OF SCHOOL SUBJECTS.)

W.D.C. and B.B.F.

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EDUCATIONAL QUOTIENT — See EDUCATIONAL AGE.

EDUCATIONAL SOCIOLOGY. One of the academic fields basic to the systematic study of education. Its general area is the relationship between society and the education process, and as such it complements the general area of educational psychology which is concerned with the individual human organism in its learning aspects. Both these areas provide objective data upon which a third major field, educational philosophy, must build its speculative search for desirable human values to be sought through education.

Two conceptions of educational sociology may be distinguished in its scanty literature: (1) the theoretic: that it constitutes primarily a socialized educational philosophy, seeking to relate educational programs more closely to life needs, and (2) the scientific: that it is essentially a social science, striving to discover empirically its own body of data and operational principles which may then be applied to the problems of education. Conflicting as these orientations may appear, they nevertheless represent two facets of one common interest in the relationship, actual and desirable, which exists between the educative process, broadly conceived, and the larger society of which that process is an integral aspect.

The field of educational sociology is therefore devoted to description and analysis of those factors, agencies, and influences which contribute—formally or informally, deliberately or accidentally—to the socialization of the individual. Specific attention is frequently given to such broad sub-areas as the social significance of education; the functional interrelationship of education with other institutions; the influence of environment upon individual and group behavior; the family, church, press, movie, government, economic system, and other institutions as educative agencies; the rôle of the school as a specialized agency in the total educative process; the effects of various societal forces and factors upon school aims, curricula, methods, organization, and control; the relationship between education and social progress; and the like.

Although educational sociology is a relatively undeveloped field and one not yet widely recognized in the professional curriculum, its influence upon educational policies and programs at all academic levels is

marked. Directly based upon its findings are such recent educational developments as the determination of school aims through life-activity analysis, the core curriculum (*q.v.*), the utilization of community resources for purposes of instruction and the cultivation of desirable attitudes, the participation of youth in community service projects and in programs of work experience, and the community school. (See COMMUNITY and SCHOOL.) These and many similar achievements during the past two decades have resulted from the work of educational sociologists, who have documented and demonstrated the intimate relationship which always exists between societal mores, human needs, and educational imperatives.

E.G.O.

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EGOISM. All human beings want to achieve some measure of distinction to enhance and perpetuate their ego (concept of self). This urge is called *egoism*, or it may also be referred to as egocentricity, self-esteem, self-regard, self-love, self-importance, or self-seeking.

The small child is very egocentric, especially before the age of three. This is shown by his language—use of imperative sentences and self-words—and by his social behavior, e.g., his desire for the exclusive possession of toys, his tendency to grab things away from others, threatening, teasing, and rivalry for the affection and approval of other children and adults. Jealousy and negativism are also evidences of a desire for mastery (See NECA-TRIVISM). Under ordinary circumstances extreme egoism declines with increasing matur-

ity and social experience, and the goal of individual adjustment is a balance between egoistic and altruistic tendencies. However, many children and adults who are unable to satisfy their ego directly, resort to various types of artificial mechanisms, such as blaming others for their failures (projection); trying to justify selfish behavior by offering altruistic reasons (rationalization); excessive boasting about abilities or exploits (over-compensations), or seeking satisfaction in imagination (phantasy).

In reality much of what is commonly called "ambition" has its basis in egoism, and is socially desirable if not developed to excess. Individuals show egoism in choosing vocations which will enhance their self-regard, even when these may not be best suited to their needs and abilities. For example, girls sometimes insist upon entering the teaching profession because of its supposed prestige, when they would be more successful in clerical or sales jobs. Another illustration of the power of egoism is seen in the Oriental's desire to "save face" at almost any cost. Thus, if a Chinese child is punished in school, his entire family "loses face", and he must do something to restore their self-esteem.

In modern society, well-adjusted individuals must find acceptable ways to build up their feeling of self-regard; they must not only avoid deflating the egos of others, but must help them to develop self-esteem. (See MENTAL HYGIENE.)

R.V.M.

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EIDETIC IMAGERY. A visual *eidetic image* is a vivid and detailed mental image projected outside the head, usually onto a dark-gray surface after the stimulus, like a picture, has been looked at with roving eyes for about thirty seconds and then has been removed. An eidetic image is said to have an after-image and a memory-image component but to be a phenomenon distinct from both. Like an after-image, an eidetic image reproduces accurately many details, such as the exact number of spokes in a carriage wheel, but it lasts longer, appears often in positive

rather than complementary colors, and may change spontaneously or voluntarily in size, shape, and manner of appearance and disappearance. Like a memory-image, an eidetic image is influenced in content by the interest of the subject and by other central factors, such as perservation, but it lasts longer, is projected outside the head, and is accompanied by incomparably stronger tension and pressure on the eyes in spite of roving vision during exposure. Eidetic imagery differs from hallucination in that the subject does not confuse it with reality. The spontaneous remarks of the subject are surprising even to himself. Moreover, the behavior of adult subjects gifted with eidetic imagery is fundamentally the same as that of eidetic children.

The consideration of eidetic imagery as a distinct perceptual phenomenon is open to question. Exhaustive check experiments have failed to confirm the "laws" of behavior posited for eidetic imagery. Final judgment as to whether it cannot be dissolved into specialized forms of after-imagery and memory-imagery, at present little understood, must await the development of adequate controls independent of the subject.

Under the direction of E. R. Jaensch of the University of Marburg, Germany, systematic research in eidetics has concentrated on contributing to the psychology of perception, education, and the concept of personality or constitutional types, and to the building of a self-contained philosophy and cultural anthropology. The disciples of Jaensch have conducted extensive but uncontrolled experiments on the relation of eidetic imagery to learning and achievement. It is claimed that Eidetiker are more creative in art, write more vivid compositions, and react imaginatively more deeply to literature rich in visual imagery, than do non-Eidetiker. They are presumed to learn spelling and arithmetic more readily by projecting images onto the paper. The writer's own controlled check experiments on Eidetiker and non-Eidetiker, paired for chronological age, verbal intelligence, and reading level, failed to reveal any significant differences, educational or statistical, as to the learning of spelling, quality of written composition, appreciation of imaginative literature, or scholastic achievement. Eidetiker accompanied their perceptual thinking, learning, and creation with emotionally toned

imaginal illustrations, which did not influence the quality of their output as measured by available instruments of evaluation.

Jaensch divides Eidetiker into two personality or constitutional types, the *Basedowoid* and *Tetanoid*, on the basis of somatic differences—like lustrous protuberant eyes, symptomatic of exophthalmic goitre—and of predominance of the after-image or memory-image component of the Eidetiker's imagery. Check experiments on the syndromes of both diseases, Basedow's (goitre) and tetany, have failed to validate the physical criterion. However, the exploitation of typological methods in research on eidetics is a contribution to the psychology of perception. The philosophical and anthropological theories based on eidetic imagery are highly speculative. S.S.

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EIGHT YEAR STUDY OF THE PROGRESSIVE EDUCATION ASSOCIATION. During the first quarter of the century the curriculum of leading elementary schools had undergone marked change. Corresponding change in the secondary school was partly inhibited by the fixed nature of the entrance requirements of many colleges. In the meantime the proportion of American youth attending secondary schools increased phenomenally. The American high school was becoming a school for the entire range of the adolescent population, youth with widely varying abilities, interests, and purposes. Although less than a third of the high-school graduates went on to college, college requirements in large measure determined the school curriculum. Freedom to experiment with the development of a curriculum better adapted to the contemporary student population required the cooperation of the colleges. Hence, the Eight Year Study was organized by a directing committee of school and college representatives with Wilford M. Aikin as chairman, and a group of thirty schools of various types and sizes scattered from Massachusetts to California was chosen. Begin-

ELECTIVE SYSTEM

ning in 1933 each school was free to experiment for eight years with its own hypothesis regarding the kind of curriculum most effective for its students. Most of the nation's colleges agreed to admit graduates from these experimental programs without prejudice to the fact that they had not met the usual college entrance requirements. The directing committee maintained a staff of curriculum consultants and an evaluation staff to assist the schools in appraising the results of the experiment.

The evaluation staff compared the college records of graduates of the experimental programs with those of a matched group of students who had met the usual college entrance requirements. The graduates of the experimental curricula were slightly superior to those of the matched group; furthermore, the graduates of the six schools that had made the most comprehensive reconstruction of their curricula were considerably more successful both in academic work and in extra-curricular activities than the matched group which had followed the usual high-school curriculum.

The Eight Year Study showed conclusively that the secondary-school curriculum could be reconstructed to provide more adequately for the wide range of high-school students without decreasing its effectiveness in preparing students for college. The investigation also identified certain principles upon which the more effective curricula were built, and developed many evaluation instruments by which some of the more intangible results of education may be appraised.

Among the methods for facilitating school-wide cooperative curriculum reconstruction developed in the course of the project was the summer workshop, which provided opportunity for groups of teachers to work on their problems for a period of six or eight weeks with the aid of a selected staff and the facilities of a large university. (See *TEACHERS' WORKSHOP*.) The effort to evaluate the progress of the students in a systematic and comprehensive fashion also proved to be a powerful instrument for guiding curriculum revision. Finally, the study demonstrated the value to teacher motivation and morale of participating in educational experimentation, and has led to a series of similar projects

among groups of secondary schools throughout the country.

R.W.T.

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ELECTIVE SYSTEM. The elective system refers to the plan of permitting college students to elect the courses they study. The most significant period of the development of the elective system was in the last three decades of the nineteenth century because of the then increasing number, importance, and extent of new courses, especially in the sciences and social studies. Since previously almost the entire curriculum had been prescribed, the only way to give new courses their proper prominence was to make certain older courses elective. Beginning about 1870 Harvard, under Charles W. Eliot (q.v.), led the experiment against considerable opposition. By 1884 the only required courses at Harvard were for freshmen, and even most freshman courses were elective. Other colleges adopted a similar, though somewhat more restricted, system. The thoroughgoing elective system, however, meant that in large colleges a student could graduate after four years of freshman courses. In the early years of this century, this fact and the increasing need for specialization led Harvard and then other colleges to the still prevalent practice of requiring a student in his last two years to concentrate in some one "major" field and one or two "minor" fields, and to use his first two years in "distribution" of his effort among several curriculum divisions. Yet, except where survey courses are required of all students, students today usually elect many of the courses they study both in the divisions of "distribution" and in "major" and "minor" fields. But the tendency to map out a four-year program of required courses is still strong, as is evident in the curricula of such new fields as home economics and business.

The major value claimed for the elective

ELEMENTARY EDUCATION

system today is that it offers a convenient procedure for adjusting the college curriculum to the needs and interests of individual students. On the other hand, there are few educators today who have so much faith in the student's intellectual maturity that they are ready to give him the complete responsibility for planning his college course. In general, the student at a liberal arts college has much greater freedom of choice of electives than has the student attending a professional course.

Although the elective system is also found in secondary schools, there the student's freedom of choice is usually greatly restricted; for example he may be required to study a foreign language, but he may choose the language to be studied; or he may elect another science instead of another foreign language. The typical secondary school curriculum consists largely of prescribed rather than elective work.

The future of the elective system depends upon that of curriculum and methods. Encouraging the individual student to elect, under guidance, initial problems, as well as to determine his own general pace and procedure of study—but only within certain broad, required curriculum divisions—may suggest the proper amount and kind of elective and required studies. Until colleges have far more experience with individualized instruction and various kinds of curriculum divisions, however, a great variety of practices is inevitable. M.G.F.

ELEMENTARY EDUCATION. Aims. Traditionally limited to mastery of the Three R's, the aims of elementary education have been broadened in recent years to comprise the furtherance of all aspects of wholesome growth and development of children. There has been a gradually increasing acceptance of responsibility for the development of physical and mental health, worth while leisure interests, social adjustment, emotional balance, the higher intellectual abilities, and the habits and attitudes that promote democratic living.

Organization and Administration. About 1840, the common or elementary school in the United States began to take shape as one comprising eight grades, except in some southern states where a seven grades school was the rule. Since 1860 the kinder-

garten movement has led to the addition, in many schools, of a year's schooling for five-year-olds preceding Grade I, and in some a junior kindergarten of one-half year for children four and one-half years old. In 1938, however, only 650,000 pupils, representing less than one-third of the five-year-olds of the country, were enrolled in kindergarten. Since 1910 the development of the junior high school has resulted in the classification of many seventh and eighth grade children in the cities as secondary school pupils. However, more than two-thirds of the seventh and eighth graders of the nation are still attending elementary schools.

The 220,000 elementary schools of the nation include 120,000 one-room buildings. The number of one-teacher schools is gradually being reduced through the consolidation of schools and the transportation of pupils to larger educational centers. In 1938, 22 million pupils attended elementary schools, ninety per cent being enrolled in public schools, ten per cent in private schools. All but some two per cent of the private schools were under church control, being chiefly Catholic, with a small minority of Lutheran schools. (See LUTHERANS, EDUCATIONAL WORK OF; ROMAN CATHOLIC EDUCATION.)

The principal (*q.v.*) is the administrative and supervisory head of the school, assisted in his supervisory duties by such city or rural supervisors as are available. The status and importance of the principal as the educational leader of the school have improved markedly in recent years. There is at present a significant trend toward a more democratic participation of the whole school staff in defining the goals and solving the problems of the school. There are some 21,000 elementary school principals, of whom one-third are men and two-thirds women. Of city school principals, some forty per cent devote full time to administrative and supervisory duties, while nearly sixty per cent are teaching principals.

Curriculum. The elementary school curriculum may be thought of as comprising (1) the basic skills of language, reading, writing, spelling, and arithmetic; (2) the content subjects of science and social studies (history, geography, citizenship); and (3) the expressive arts of music, painting, drawing, and bodily movement. A survey in 1936 indicated

that almost half of the school day was devoted to work in the basic skills, one-sixth to social studies, and slightly more than one-third to art, music, physical education, and the other so-called special subjects.

Whereas the curriculum was formerly thought of as merely certain skills and subject matter to be learned, the present tendency is to consider it as comprising all the activities and experiences that children have through their attendance at the school. Another trend is toward increased integration or correlation of the program; activities in the content subjects provide needs and incentives for mastery of the Three R's, and the expressive arts furnish outlets for ideas, insights, and emotions derived from study in the content areas. (See ACTIVITY PROGRAM.)

Methods. Since 1910 especially, methods of teaching have been and still are being improved continually through widespread research and experimentation. Increased instructional efficiency has resulted also from better preparation of teachers, improved classification of pupils, more discerning analysis of pupils' needs, progressive improvement of teaching and learning materials, and increased recognition of the factors of maturation and readiness in learning. There is increased emphasis on enlisting the aggressive cooperation of pupils in their own education by appealing to motives and purposes that they can accept as significantly worth while, in contrast to earlier practices of imposing "bookish" subject matter on reluctant pupils.

Standards. The average school year in the United States is approximately 170 days, ranging in different states from 130 to more than 180 days. Former attempts to enforce rigid and uniform standards of attainment on all pupils for promotion from grade to grade and for graduation have by and large been abandoned in view of the tremendous individual differences among pupils which modern research has revealed. Frequent use of informal and standardized tests to reveal pupils' specific needs as well as accomplishments has largely replaced the earlier administration of uniform examinations on a county-wide or state-wide basis as hurdles to further schooling.

Teachers. Some 660,000 professional workers serve in the elementary schools of the United States. Twelve per cent are men

and eighty-eight per cent are women. The preparation of these teachers ranges from high school graduation to graduation from college. The bachelor's degree is required for elementary school certification in five states. It is estimated that three-fourths of the elementary school teachers have at least two years of college work. Salaries vary with the level of preparation demanded, the average for the United States in 1936 being \$882 per annum. Teachers in the elementary schools generally receive less compensation than high school teachers, although the trend is toward the payment of equal salaries for equivalent preparation and experience.

Pupils. In 1938, 22 million children attended elementary schools. According to the 1930 census, ninety-five per cent of all children seven to thirteen years of age were in school. About eighty-six per cent of these were, on the average, in 1938, in attendance each day. Slightly more than half of all elementary school pupils live in the country or in towns of less than 2,500 inhabitants. One child in five is foreign-born or of foreign or mixed parentage. In nineteen states, the average annual expenditure per child in average daily attendance is approximately \$58. In 1936 it was revealed that out of every 1,000 children who had enrolled in Grade V, 831 pupils reached Grade VIII. J.A.H.

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ELEMENTARY SCHOOL PRINCIPAL
—See PRINCIPAL, SCHOOL.

ELIMINATION, PUPIL. The chronological age at which pupils leave school varies from state to state according to the legal school leaving age, which in 1938 was 14 in Louisiana, Georgia, and North Carolina, 15 in Virginia, 17 in Wyoming, North Dakota, South Dakota, Mississippi, and Maine, 18 in

ELIMINATION, PUPIL

Idaho, Nevada, Utah, Oklahoma, and Ohio, and 16 in all other states, with provision for working permits in exceptional cases for children below these ages.

The grade level at which most of the elimination occurs will, of course, depend upon the school's promotion practices as well as upon the age to which education is compulsory. Whether students remain in school beyond the minimum school leaving age depends upon such factors as the attractiveness of the curriculum, the economic need of the student, the child labor laws, and the availability of employment. In a study made of out-of-school youth in Maryland in 1937, nearly 11,000 youth between the ages of 16-24 gave reasons for having left school. Of these, 34 per cent cited lack of family funds; 16 per cent, the desire to earn their own money; 4 per cent, the necessity of working at home; 21 per cent, a lack of interest in school; 2 per cent, disciplinary trouble; 2 per cent, difficulty with subject matter; 3 per cent, poor health; 3 per cent, marriage; 13 per cent, a feeling of satisfactory completion when graduated from elementary school, high school, or college; and 2 per cent gave other reasons. A similar study in Pennsylvania revealed almost identical percentages. In states where children may leave school at a relatively low age, there is a good deal of withdrawal in the sixth, seventh, and eighth grades of the elementary school. While a large number of states have the same number of pupils in Grade VII as in Grade II, for the United States as a whole (in 1935-36), the percentage of elementary school children in Grade II was 12.5, while for Grade VII it was only 10.7. All states which showed a considerable difference between the number of students in the seventh grade and those in the primary grades were southern states. South Carolina, with only a seven year elementary school, should have had about 14 per cent of its elementary school enrollment in the seventh grade; actually, only 7.7 per cent of the children were found in Grade VII, showing that very considerable elimination was taking place below that grade. In the southern states, there is, furthermore, a decided difference between the mortality statistics of the white and the Negro students, the percentage of Negro students in high school being far less than

the percentage of white students receiving secondary education in the same state.

High school mortality is high throughout the United States. Of all pupils who enter high school only about half remain until graduation. In 1935-36 the highest mortality occurred during the first years, the sophomore enrollment being 82 per cent of that in the freshman year. In each of the other grades about 9 per cent of the students left, while in 1933 about 20 per cent of those who were graduated from high school entered college. Fewer than half of those who enter college are ever graduated from college, though the percentages differ greatly from college to college, the range being from about 25 per cent to 80 per cent.

From the Maryland and Pennsylvania reports cited above, it is seen that youth themselves attribute early school leaving predominantly to economic reasons, though a considerable proportion attribute blame directly to the curriculum which had been offered them. The failure of the curriculum to interest students reinforces the power of whatever economic reasons there may be to make them leave school. Many students who feel that they have to leave in order to earn some money may feel that necessity much less if their school experience is such as to make them desire to remain. The excessive amount of course failure in high schools tends to make many students look forward impatiently to the time when they will be permitted by law to leave school. Secondary education has not yet adapted its curriculum to a range of intelligence which is widening at the lower end as more and more of the nation's youth of high school age are required by law to attend school. That lack of ability is one reason why students do not complete the high school course is shown by the fact that a larger percentage of each decreasing I.Q. group fails to graduate. With most colleges being deliberately selective in terms of the ability of their applicants, it is not surprising that an exceedingly small number of students with an I.Q. of less than 100 ever enter college. Graduate schools are even more selective, reporting median I.Q.'s of 130 and 140.

Just as students of lower I.Q. drop out of school at a lower school level, so do a very much greater percentage of students of lower economic groups leave before their richer

classmates. There is a strikingly large difference between the number of college students from the upper three deciles of income and the number of college students drawn from families of the three lowest income deciles.

During a depression era, the holding power of high schools may be greater since the demand for young, inexperienced workers decreases. During such periods, too, employers tend to demand more schooling of their applicants for jobs, thus increasing the drive to stay in school. However, training for the vast majority of occupations is done on the job rather than in school, thereby eliminating one of the major stay-in-school drives for older boys and girls. The value of a long general education is not yet appreciated by a considerable proportion of the American population, and it is possible that such appreciation will not come until the curricula of both secondary schools and colleges are changed considerably. (See LIBERAL ARTS COLLEGE, PROMOTION, SECONDARY EDUCATION.)

B.B.F.

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ELIOT, CHARLES WILLIAM (1834-1926). Dr. Eliot was an American educator who touched his intellectual environment at many points. He was a prolific writer—Henry James's biography of Eliot lists fourteen pages of bibliography, giving the titles of his books, articles, and published addresses, most of them in the fields of education, the social sciences, and public affairs.

In the field of education, Eliot is important on the one hand as a leader of college and university reform, and on the other as a potent influence in the reorganization of secondary education.

College Reform—Electivism. During his long incumbency as president of Harvard (1869-1909), Eliot became identified with the movement to supplant a rigidly prescribed college curriculum with one incorporating the elective principle. When in 1869

he took up the cudgels for this reform, the American college curriculum provided practically no choice of studies. Harvard, fairly typical, allowed one Greek or Latin author to be studied rather than another, more or less mathematics, a little more time to science for some students, a little more to modern languages for others. Science, modally, was taught in a separate scientific school rather than as a corporate part of the American liberal arts curriculum. The courses in English were few and quite elementary; it was generally believed that a student could read English literature privately.

Eliot contended that the spirit of the American college must be "broadened, deepened, and invigorated". He believed that all branches must be represented in the college curriculum, and held that there was no real antagonism between the sciences and the humanities. (See SPENCER.)

To Eliot, it was variety of intellectual product and not uniformity that a democratic state had a right to expect from its colleges. As for individual students, they were entitled to the highest development of their own powers, which for some lay in the field of the sciences and for others in the field of the humanities. The American college should provide for both, incorporating the principle of electivism.

Reorganization of Secondary Education. Eliot's work has also been significant in the reorganization of the pattern of American education from the traditional eight-year elementary school, followed by the four-year secondary school, followed in turn by the four-year college.

Eliot joined with President Nicholas Murray Butler and other university administrators in the last decade of the nineteenth century in attacking egregious "waste of time" in the American system, owing to the late beginning of secondary education and the consequent late completion of the baccalaureate studies (three to five years later than in European countries).

In his Address before the National Education Association (1888), and in the Report of the Committee of Ten (*q.v.*) of this body (1892), Eliot drew national attention to this problem and to its solution, which, as he saw it, was to reorganize the American system of public education so that such genuinely sec-

ondary studies as foreign languages and mathematics beyond arithmetic should be made available at about the beginning of the seventh school year. With a retrospect of fifty years, there can be recognized in Eliot's thinking on this subject the embryo of the reorganization that later (c. 1910) fructified in the junior high school idea (*q.v.*).

P.R.V.C.

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EL SALVADOR, EDUCATION IN—
See CENTRAL AMERICA, EDUCATION IN.

EMOTIONAL ADJUSTMENT — See MENTAL HYGIENE.

EMOTIONAL CONFLICTS—See CONFLICTS (MENTAL AND EMOTIONAL.)

EMOTIONS. Emotions are spontaneous reactions which the organism makes to varying degrees of suddenness and intensity of the stimulating cause and to its own state of preparation for dealing with the situation. Emotions are complex responses made up of four component parts: (1) different degrees of intensity, as mild and strong; (2) different qualities known to the person having the emotion, as fear, joy; (3) different physiological changes in the organism, as increased blood, or glandular secretions; (4) different feeling tones, as pleasant and unpleasant. Emotions indicate an aroused or upset state of the organism causing the individual to do something which he hopes will restore a state of relative balance. The purpose of emotion then is to release energy for getting things done. If this aroused state results in a ready and effective response, little emotion is felt or shown and the normal physiological functioning of the organism is quickly restored. One of the purposes of education is to help prepare these ready and effective responses, to give children experiences from which they can glean methods of attack which solve rather than increase their problems. Obviously before children have learned to direct this released energy properly, they will do violent

things which increase their dissatisfaction, cause more tension, and frequently result in unreasonable behavior. The parent or teacher should help children find more adequate ways of meeting situations. The whole child cannot be educated until schools accept their responsibilities for training the emotional responses of the child.

Violent emotions are symptoms of maladjustment. The causes of this maladjustment should be found out and studied carefully, and some intelligent plan for its treatment should be made. Restraint only intensifies the emotions which the child may then direct either against himself in feelings of guilt, anxiety, and inferiority; or against others in resentment, vengeance, and destructive behavior. If, on the other hand, this released energy finds outlet in reasonably effective activity, with feelings of healthy self-respect, the child very likely will develop attitudes and skills which will insure his becoming a well-adjusted and happy individual. The primary tasks of education are to discover and treat the causes of maladjustments in children, and to help children develop criteria for judging the effectiveness of their activity and techniques for dealing adequately with situations as they arise.

M.S.Q.

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EMULATION. Emulation refers to the attempt to equal or excel the achievements or personality traits of other persons.

Most people pattern certain phases of their behavior on models who seem to them worthy. This natural desire to emulate has been used from time immemorial by parents, teachers, and even nations as a principal means of character education. The boy of ancient Greece was exhorted to become as courageous as Achilles and as wise as Ulysses. Similarly the American boy may be expected to pattern his honesty after George Washington of cherry-tree fame, his learning after the log-cabin Lincoln reading law by firelight, his tenacity after the Horatio Alger hero reaching the

ENDOCRINE GLANDS

temptation of financially profitable dishonor. Frequently, however, youngsters have their own particular heroes—the All-American football player, the home-run king, the movie star, the adventurous character of the comic strip—who set the pattern for mannerisms, dress, action, and play. The tendency to emulate is fostered actively by popular literature, the comic strips, motion pictures, and advertising. It is these influences, together with the changing trends in the news (the glorified gangster gives way to the G-man, the G-man to the Commando), that determine to a large extent the models who become the basis for emulation in young people. These influences are strong competition for the teacher or parent who wishes to make use of emulation in developing desirable habits and attitudes in children; too often “educational” emulation fails because the models it uses cannot always approximate the glamour of popular heroes of the moment.

The educational possibilities of emulation are subject to other common limitations: (1) There is the possibility of the child's personality maladjustments and of a waste of energy in the vain endeavor to emulate the achievements characteristic of those who are not worthy of emulation, or of those whose virtues and attainments, either supposed or actual, are so great that any attempt at imitation is doomed to failure. (2) There can be no emulation without the child's desire to imitate. Constant nagging is apt to lead to resentment and negativism rather than to the desired end. The youngster's self-respect does not permit to imitate someone of whom he disapproves (for example, the “sissy” who is always clean and neat) just to please the parent or the teacher.

When children themselves are to be used as models, it is advisable to spread the basis for emulation so that no one child bears all the burden of being the model—the “teacher's pet” is never liked and lives the unhappy life of a social outcast. Many children can be used as models, as when one is praised for his neatness and another for punctuality; even an entire group may be used as a model—“Second-year boys and girls always can be trusted to bring their books.”

To be successful, emulation must set goals

that are attainable, desirable (from the child's point of view), and socially acceptable.

C.M.R.

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ENDOCRINE GLANDS. The endocrine gland (glands of internal secretion, ductless glands) are a group of interrelated body organs. Each has a distinct function, but they are mutually interdependent. From the blood each gland takes materials which it makes over into specific hormones which are then returned to the blood. In general, these glands regulate body growth, nutrition, mental activity, and the reproductive functions. Included in this group are: (1) the pituitary, (2) the thyroid, (3) the parathyroids, (4) the thymus, (5) the islands of Langerhans, (6) the adrenals, (7) the gonads or sex glands. Many of the mental and emotional adjustment difficulties of school children are due to disturbances of glandular function. The extremes of glandular abnormality are usually diagnosed long before the child reaches school age. It is the border-line case or the neglected one that can be helped if the teacher is aware of the existence of such problems. A familiarity with the more common deviations from normal function may help the educator to understand a child's failures and to direct the pupil to the proper agencies for treatment.

Pituitary gland. The pituitary gland, about the size of an ordinary pea, is located within the skull and lies in a small socket in the bone which forms the rear of the nasal passages. It is composed of an anterior (front) lobe, a posterior (rear lobe), and an intermediate portion. The anterior lobe manufactures a complex group of secretions which control bodily growth, regulate the development and maturation of the sex glands, stimulate activity of the thyroid gland, regulate the function of the adrenal glands, stimulate the activity of the pancreas, and stimulate milk secretion in the breast.

Lack of anterior pituitary hormone during the growth period may cause stunting, and/or obesity with lack of sexual development.

Overactivity of this structure during the growth period, will result in gigantism: the general overgrowth of the skeleton may result in a stature of seven to eight feet. If overactivity begins after the bones have stopped growing (in adult life), acromegaly results: a widening of the bones, particularly of the face, hands, and feet, giving a leonine appearance. Lack of pituitary is being treated with extracts of the gland taken from animals. This treatment is still in the experimental stage. For overactivity, usually due to a tumor of the gland, removal is sometimes brilliantly successful.

The posterior lobe secretes a hormone which increases the contraction of involuntary muscles of the uterus and the intestinal tract.

Thyroid Gland. The normal thyroid weighs about an ounce and is composed of two lobes which straddle the upper part of the trachea (windpipe). The chief ingredient of its secretion is the hormone thyroxin, which is conspicuous for its iodine content and dependent for its manufacture on ingested iodine. The gland regulates the utilization and absorption of food (metabolism), the rate of respiration, the rate of circulation, growth, mental activity, and the function of the reproductive glands.

Deficient thyroid secretion (hypothyroidism) results in a slowing of all the body processes. Extreme hypothyroidism at birth results in cretinism, characterized by stunted growth and sluggish mentality. When acquired after growth is complete, hypothyroidism results in a tendency to gain weight, extreme sensitiveness to cold, slowing of the heart beat, slowing of the rate of respiration, lack of energy, mental slowness, and interference with the reproductive process.

Overactivity of the thyroid (hyperthyroidism) speeds up all of the body processes: the pulse is rapid; there is increase in the rate of food digestion; increase in appetite is accompanied by loss of weight; there is an increase in temperature, restlessness, and nervous irritability. In extreme cases, the eyes become very prominent, often to the point of protrusion. This condition may or may not be accompanied by a visible enlargement of the gland itself.

In deficiency, administration of thyroxin or of tablets made from the whole dried gland produce results that are markedly successful.

In overactivity, removal of part or all of the gland has proved a very satisfactory method of treatment.

Parathyroids. The chief function of the parathyroids (four tiny glands situated on the under surface of the thyroids) is to regulate the utilization of calcium by the body and to control the proper distribution of lime salts to the tissues. A lack of this hormone produces nervous irritability with muscular cramps, muscle spasms, and even convulsions accompanied by degenerative changes in the hair and nails. An excess produces a disturbance of bony structures because of too great a withdrawal of lime salts from the bones into the blood.

A lack of secretion may be overcome by the administration of an extract of the glands.

Thymus. The thymus gland is situated in the upper part of the chest just behind the breast bone. It is prominent during the first years of life and tends to disappear after adolescence. It has been thought to aid in growth and to be an important factor in the development of the reproductive organs.

Islands of Langerhans in Pancreas. The pancreas is in the abdominal cavity, a little below and behind the stomach. Scattered through its substance are groups of highly specialized tissue known as the islands of Langerhans. They manufacture a hormone, insulin, which enables the body tissues to utilize the carbohydrates which are ingested; it also enhances the body's ability to convert sugar into glycogen and to store it in the liver and muscle tissue for use as the need arises.

A lack of insulin, resulting apparently from a degeneration of these glandular tissues, is the cause of diabetes: a complete inability to utilize and store ingested carbohydrates with a consequent loss of sugar from the tissues and a concentration in the blood and urine. This waste of carbohydrate results in extreme hunger and thirst, with loss of weight and strength. In more severe cases, coma and even death may result.

Lack of insulin may be corrected by the injection of the hormone isolated from the pancreatic tissue of sheep. (Since insulin is destroyed by the juices of the stomach, it cannot be taken by mouth.)

Adrenal Glands. The adrenals are small glands which fit over the top of the kidneys.

They are composed of two portions: an outer *cortex* and an inner *medulla*, each producing a specific hormone.

The cortical hormone, cortin, is necessary for the proper utilization of oxygen by the body; it is also important in maintenance of adequate circulation of the blood. It is also intimately connected with the function of the sex glands. Disease of the cortex of the adrenals causes death unless the hormone is supplied. Tumors of the cortex cause profound changes in sex characteristics.

The medullary hormone is adrenalin (sometimes called epinephrin). Adrenalin is an activator and stimulator of practically all body activities. Conditions that produce fear and the need for flight, or anger and the need for action stimulate increased adrenalin, which in turn increases the pulse rate and releases tissue reserve energy. The extract of the adrenal gland is used to raise blood pressure in cases of collapse, to relieve nasal congestion, and to stop bleeding. It is one of the indispensable drugs.

Reproductive Glands. These glands (the gonads) comprise the ovaries in the female and the testes or testicles in the male. They produce the ova of the female and the sperm of the male, respectively; in addition they produce several internal secretions which affect the distinguishing characteristics of the two sexes and the various sex functions. The internal secretions of the ovary seem to be an activator of general body activity. Removal of the gonads before maturity prevents typical sex development. In the male, height is increased, the voice remains high pitched, the face remains hairless, fat is deposited in feminine fashion, and the sex organs remain infantile. In the female, the appearance becomes masculine and menstruation does not take place. After maturity, removal of the gonads or decrease in function causes minor changes in appearance and results in diminished function of the reproductive mechanism. A relative deficiency begins in all persons at middle life. Several laboratory produced hormones are used in cases of deficiency. (See also HEALTH.)

A.M.S.

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ENDOWMENT. When used as a financial term, *endowment* refers to a sum of money the principal of which is to be maintained intact, and only the income of which can be used. Endowment fund is the principal amount; endowment income is the income derived from the principal or endowment fund. Endowed college or university refers to one not supported at public expense and whose support comes mainly or largely from endowment funds, though some such endowed schools receive some income from public funds. The income on an educational endowment is devoted to educational purposes.

The first endowed educational institution is said to be Plato's house in 347 B.C. The history of endowments in England shows more endowed schools below collegiate rank than of collegiate rank. Also in England the separate college within the university, rather than the university itself, has been endowed.

In 1880 more than half the income for institutions of higher education in America came from endowment funds. For 1935-36 the fraction was reduced to less than one-eighth of the total income. In 1937-38, 2.6% of the total general income of publicly controlled institutions of higher education and 25% of the income of privately controlled institutions of higher education came from endowment funds. (See also FOUNDATIONS, PHILANTHROPIC; PHILANTHROPY, EDUCATIONAL; SUPPORT OF EDUCATION.) R.A.K.

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ENGINEERING EDUCATION. It was not until the 18th century that the civil engineer was recognized as the designer of works especially for civilian use, most earlier engineering achievements having been the pro-

ducts of military engineers. Up to 1850 Paris was the leading influence on engineering education. Great Britain had only three small centers, each with a single professor, but in time it developed the technical institute to a high degree of efficiency. Later followed the German technical *Hochschule* or *Technicums* of which there are many today.

Engineering education was started in the early years of the American republic. West Point was instructing a corps of engineering cadets during the War of 1812, and it emerged as a school of advanced character in 1817. Instruction followed in a general way the *École Polytechnique* of Paris. Rensselaer Polytechnic Institute, established in 1823 as Rensselaer School, developed into the first professional school of civil engineering in the English speaking world. Amos Eton was the organizer, and his successor, B. Franklin Greene, reorganized the curriculum and stamped it with a character which influenced other institutions. Dartmouth College taught civil engineering in 1845 and established Chandler Scientific School in 1851 "to be a school of industrial vocations." Early venturers into this new field were the University of Georgia, the University of North Carolina, Harvard, Yale, Union College, Brown University, the University of Missouri, and others. The University of Michigan in 1852 was the first of the state institutions to give instruction in engineering.

The Morrill or Land Grant Act of 1862 gave a significant incentive to the states to create or designate institutions "for the applications of science to the common purposes of life." The Massachusetts Institute of Technology and many of the other Land Grant Colleges were organized soon after the Civil War ended. Their influence on the development of engineering education from its early "mechanic arts" to its present form has been momentous. Columbia University was the first to establish a school of mines; mechanical and electrical engineering were included later, and many other curricula followed. By 1870 there had come a definite development of the laboratory as an instrument of instruction, and later, of research and graduate study. At that time the laboratory was not part of the instruction in European schools, but was later adopted by technical institutes and engineering colleges abroad.

Trade, Technical, and Engineering Education. The manufacturing and engineering industries require large numbers of skilled workmen. Trade and vocational schools have been established to meet this need. Here boys with manual aptitude are prepared for a variety of occupations, such as plumbing, welding, pattern making, and the trade of mechanics, but the distribution of these schools is neither adequate nor equitable. The system of apprentice training is still used to train skilled workmen, but it is not employed as generally as it was before the trade school was organized.

The technical institute gives a brief, more intensive, more directly practical course than the higher professional schools for engineers. In 1928-29 the National Industrial Conference Board estimated that "upwards of 90,000 recruits for technical and supervisory positions per annum" were needed by American industry. Fewer than 1,500 of these men were furnished each year by the technical institutes, while some 9,000 more were graduated from the engineering schools, a number which had increased in 1942 to about 13,500.

The curricula of the engineering schools provide both general academic and professional education. Approximately one-half of the subject matter is general or academic and dominates the first two years. About one-sixth is cultural or humanistic in nature, including such subjects as English, economics, history, psychology, and other courses which are available as electives. The basic sciences comprise perhaps one-third of the course and include mathematics, physics, chemistry, mechanics, bacteriology, hydraulics, electricity, magnetism, thermodynamics, geology, and minerology. Professional engineering is confined largely to the last two years and includes instruction in the theory of structures; the techniques of surveying; the design, construction, and operation of bridges, buildings, mines, railways, waterways, highways, airways, engines, generators, motors, and gas, water, sewage, and chemical works.

The major curricula are in civil, electrical, mechanical, mining, and chemical engineering. Later additions include aeronautical, architectural, ceramic, metallurgical, petroleum engineering, and others. A recent trend is to reduce specialized instruction and to add or substitute subjects in management,

psychology, and the social sciences.

Methods of instruction in engineering subject include class recitations, lectures, laboratory, and field work. A given course may utilize all these methods.

By October 24, 1940, a list of 542 engineering curricula in 125 engineering colleges had been surveyed and accredited by the *Engineers' Council of Professional Development*, an organization representing eight national engineering societies. The diplomas of these curricula are recognized by State Boards of Engineering Examiners for professional or licensed engineers. Other committees of the Engineers' Council are: 1. Student Selection and Guidance, 2. Professional Training, and 3. Professional Recognition. A special committee is formulating "Canons of Ethics for Engineers."

Cooperative Instruction.

A number of engineering schools organize their instruction so that a student is in residence for a period of from one to three months, after which he takes a job in industry and is replaced by a fellow student who returns to the campus. Thus one-half of the students are in industrial work, while the other half are receiving class instruction. Some institutions start this program in the freshman year; others postpone it until the sophomore year. While the cooperative plan lengthens the time required for graduation to a period of at least five years, it does enable the student to earn part of his expenses while learning, and gives him a working knowledge of industry, labor, and management. (See COOPERATIVE EDUCATION.)

Qualifications Desired of Engineering Students.

The minimum requirements for admission to a four year engineering school which grants a diploma, are graduation from an acceptable four year high school course with: (1) at least one and a half years of algebra, a year of plane geometry, and a half year of either solid geometry or plane trigonometry; and (2) work in English, history, and science. While the particular requirements may vary, the total is usually 15 high school units.

The fact that, on the average, less than 40 per cent of those entering engineering colleges are graduated has led to a study of aptitudes and scholastic fitness. Some institutions set minimum averages in all high

school subjects; others require students to pass the Regents Examinations of New York State, the College Entrance Board Examinations, or a variety of tests such as the Scholastic Aptitude Test of the American Council on Education, tests in special subjects, aptitude or achievement tests. (See PROFESSIONAL APTITUDE TESTS.) The results are used in counseling applicants or those who are failing. Instead of dropping the student from college after having accepted him as a fit person to pursue a higher education, the more humane method now followed is to assist him in finding the academic field for which he is best fitted.

The social importance of engineering and the impact of new inventions and labor saving machinery on occupations is leading to a demand that the engineering educators take more responsibility for social controls, retraining for new jobs, and for occupational security. R.L.S.

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ENGLAND AND WALES, EDUCATION IN. The system of education in England and Wales, in organization and administration, presents many aspects which may prove unfamiliar to American eyes. The three most distinctive features, as outlined in a recent publication of the British Board of Education, are as follows:

1. The decentralization of responsibility and control

2. The prominent part played by voluntary agencies

3. The freedom of teachers from official control on questions relating to curricula, syllabi of instruction, and methods of teaching.

The central and local authorities consult and cooperate, either by direct contact or through the Board of Education liaison officers, His Majesty's Inspectors of Schools, who generally reside in the areas of the various local education authorities. The Local Education Authority is not the same as the American type of board of education. The L.E.A. is the local government (council) and is divided into committees of which the education committee is one. Both central and local authorities are bound by acts of Parliament. By these Acts definite duties are placed on the Board expressed either as Statutory Regulations or in Circulars addressed to local education authorities. The latter, however, which are popularly elected, enjoy real autonomy. The prominent part played by voluntary agencies in British education is due to the fact that in the first instance educational provision was made by religious bodies, voluntary societies, and public spirited individuals. Opponents of the system say that the agencies have created a vested interest, while those who favor it say that it established a tradition of voluntary effort, which is the most valuable feature of the state system today. For good or evil, it does play a vital part in the educational system of England, and a full appreciation of this fact is necessary in order to understand English education.

The teachers are the servants of local authorities or of the managers of schools or of governing bodies. Head teachers enjoy wide powers in the organization of their own schools, plan the curricula in consultation with their staff, order their own textbooks, and both they and the other teachers have wide freedom in methods of teaching.

The Board of Education and the local education authorities, however, advise teachers and can make their views known through the medium of reports by their respective offices. The Board also collates results of interesting experiments, issues pamphlets on topics, and

periodically publishes a "Handbook of Suggestions for the Consideration of Teachers in Public Elementary Schools".

The Board of Education has also a Consultative Committee, composed of distinguished administrators and educators, to whom the President periodically refers matters for investigation and report. Recent valuable reports of this committee, which have influenced educational organization in the country, are *Education of the Adolescent*; *The Primary School*; *The Infant and Nursery School*, and *Secondary Education*. These reports summarize the opinions of responsible British educators on these subjects.

Administration. The central authority is known as the Board of Education, with a political head known as the President, who is also a member of the Cabinet. Serving with him is a Parliamentary Secretary, who is also a member of the Government and of Parliament. The Board functions through a permanent staff of civil servants stationed in London, and Inspectors who work in the field.

The universities lie outside the jurisdiction of the Board; so also do approved schools for delinquents (Home Office), education for agriculture (Board of Agriculture), and Ministry of Labour Instruction Centres. In the words of a Board Publication: "The Board does not provide, own or directly control any educational institution; it does not prescribe, compile or publish textbooks for use in educational institutions; nor does it employ or pay any teachers. Public educational institutes are locally provided, maintained and controlled with the financial assistance and advice of the Central Authority."

Local Education Authorities. Altogether in England and Wales there are 315 Local Education Authorities, composed as follows: 63 County Councils, 83 County Borough Councils, 150 Borough Councils, 19 Urban District Councils. All County Borough Councils are education authorities, but only those Borough and Urban District Councils are education authorities whose boroughs and urban districts respectively had a population of over 10,000 and 20,000 in 1901. Further only County and County Borough Councils are education authorities for both secondary and elementary education. These Councils, which are popularly elected, are the authori-

ties for almost all forms of local government as well as education; consequently they administer education through an education committee, generally composed of some members of the Council plus co-opted educationalists, some of whom must be women. The Local Education Authority has its own officers, the chief of whom is known as the Chief Education Officer, Director of Education, or Secretary to the Education Committee. It also employs other technical officers, generally known as organizers or inspectors of schools. Authorities for elementary education alone are responsible for seeing that all children between the ages of five and fourteen or fifteen years receive efficient elementary education, while those responsible for both forms, are responsible also for those whose education will go beyond that age in Secondary Schools, Technical Schools, Schools of Art, Schools of Commerce, Trade Schools, Teachers Training Colleges, Adult Education classes, etc. The County Councils are responsible for the higher education in the areas of the Borough and Urban Districts, situated within the county, and work in close cooperation with them. Attendance at elementary schools is compulsory from five up to the end of the term in which a child attains the age of 14 years.

Voluntary Bodies. Voluntary agencies as well as Local Education Authorities are responsible for the full or part provision of almost every grade of education in the area. They provide nursery schools, special schools, elementary schools, secondary schools, training colleges for teachers, and adult education classes. These may be wholly maintained, or just financially assisted by the L.E.A.: many receive a grant direct from the Board of Education, or may be entirely responsible for their own finances. There are, in addition, in Britain a large number of private schools, some of which are wrongly termed "public schools," which receive no aid from either authority, but many of which, at their own request, are inspected by the Board's Inspectors.

Financial Arrangements. Practically the whole of the expenditure on education is met jointly by the Board of Education and the Local Education Authorities, the former from national funds voted by Parliament and the latter from local "rates," a kind of

property tax. The Board of Education disburses its funds in the form of a percentage grant on approved expenditure of Local Education Authorities; the grant is made on the basis of the following formula:

Elementary Education:

60 per cent of Teachers' Salaries,

50 per cent of Special Services, which include nursery schools, school medical service, provision of meals, schools for defective children, organization of physical education play centres, and maintenance allowances. Under the Education Act of 1936 (now, 1942, in abeyance) a 50 per cent grant was paid on expenditure in non-provided schools (voluntary body schools), building, and all costs incurred on Hadow reorganization.

40 per cent of cost of conveyance of children.

20 per cent of remaining net expenditure.

In addition, the Board makes a per capita grant of 36/- for each unit of average attendance in elementary schools. But for the purpose of equalizing distribution of grant, as between poor and rich authorities, from the sum total of the above is deducted the product of a 7d. rate in the area.

Higher Education:

50 per cent grant on all expenditure connected with higher education (Secondary, Technical Schools and Colleges, Training Colleges, etc.).

Other Forms:

The Board also makes grants amounting to an approximate annual total of £2,206,000 to bodies other than Local Education Authorities. These include the following: training of teachers in voluntary training colleges or universities; voluntary schools for defective children; boarding schools such as Dr. Barnados Homes; play centres and nursery schools; secondary schools receiving direct grants from the Board; tutorial adult classes; grants to individual students (state scholarships at universities, training college students, Royal College of Art and Imperial College of Science), and grants to voluntary organizations for the provision of facilities for physical training and recreation. The distribution for 1937 and the total for 1939 is set out below.

ENGLAND AND WALES, EDUCATION IN

	Exchequer	Rates
Universities	£ 1,914,103	£ 509,959
Agricultural	290,614	156,131
Elementary	34,697,331	35,211,720
Higher	10,811,230	9,756,136
Miscellaneous	433,267	
Teachers' Pensions	7,133,384	
Administration	662,625	
Total	55,942,554	
Less Receipts		
Teachers	2,821,087	
Employers	2,818,594	
Other	51,284	
Total Receipts	5,690,966	
Net Total (1937)	£50,251,588	£45,633,946
Net Total (1939)	£52,321,000	£49,635,000

Elementary Schools. Compulsory attendance age—five to end of term in which a child attains the age of fourteen. In 1936 the upper age limit was raised to fifteen, but the enforcement of this provision was postponed to the end of the war. Children under five may attend nursery schools or nursery classes which are increasing in numbers. The duty of securing compulsory attendance is laid on the L.E.A., who must prosecute any parent who neglects to cause the child to receive efficient elementary instruction. All elementary education is free. There are two types of elementary schools: those provided by the authority (Provided or Council Schools), and those built by voluntary agencies (Voluntary or Non-Provided Schools), mainly the Church of England and the Roman Catholic Church. The L.E.A. is responsible for maintaining all public elementary schools, whether Provided or Non-Provided; maintenance of Non-Provided Schools includes salaries of teachers, furniture and equipment, books, apparatus and stationery, heating, lighting and cleaning, and making good fair wear and tear. Teachers in Provided Schools are appointed by the L.E.A., and in Non-Provided Schools by the managers, subject to the approval of the L.E.A., who can withhold approval on educational grounds only. All Provided Schools can give religious instruction (and all do), which must not be that of any particular religious denomination. Religious instruction in Non-Provided Schools conforms to that of the body providing the school. Pupils at both types of schools are protected by a "Conscience Clause," which provides for the exemption of pupils and students from religious

instruction in schools and training colleges maintained by or in receipt of financial aid from public authorities. The L.E.A. is responsible for all secular instruction in both Provided and Non-Provided Schools.

Formerly there were two types of elementary schools: one, the Infants', for children from 5 up to 7 or 8 years, and one for children of all ages from 7 or 8 to 14 and 15. Since 1926, elementary education in Britain has undergone a process of reorganization, into Infant—5 to 7 or 8; Junior—7 or 8 to 11; and Senior or Modern Schools—11 up to 14 or 15 or even 16. Hundreds of well equipped new Modern Schools were built, which differed little, if at all, apart from equipment and organization, from the "Secondary" Schools. During the last 20 years many nursery schools were also built by the L.E.A.

The curriculum in the elementary schools always includes the following subjects: English language, handwriting, arithmetic, drawing, nature study, geography, history, music, hygiene, physical training, handicrafts, and domestic subjects. To these are frequently added general science, a modern language, commercial subjects, and other subjects. The Modern Schools generally have a "bias" toward the occupation the child is likely to enter: commercial, industrial, domestic, or rural.

Secondary Schools. These provide a general education, as distinct from vocational, for students from the age of 11 to 17 or 18, and are of three types: those wholly maintained by the L.E.A., those aided by the L.E.A., and those which receive a direct grant from the Board of Education. Outside these lie the "Public" schools and other private schools, both day and boarding. Many day schools both private and secondary (generally the Grammar Schools) claim the title "Public", but these in reality are certain of the non-local boarding schools, such as Eton, Harrow, Winchester, Rugby, Oundle, etc. In schools in which the L.E.A.'s aid, they are represented on the Governing Body. Schools in receipt of grant are inspected by the Board of Education.

All publicly aided secondary schools must charge fees, which vary considerably from area to area. All local education authorities conduct what is known as a Special Place's

ENGLAND AND WALES, EDUCATION IN

Examination for entrance to secondary schools at the age of 11 or 12. A large number have a 100 per cent Special Place's Examination: *special place* children pay fees in accordance with the financial position of the parents. The scales are so generous that in many cities a large number pay no fees.

There are boys' schools, girls' schools, and coeducational schools. In the cities the majority are one-sex schools.

To comply with certain requirements laid down by the Board of Education, the curricula generally include the following subjects: English language and literature, at least one foreign language, geography, history, mathematics, science, art, music, manual instruction, domestic subjects, physical exercises, and organized games. In addition, there are many "optional" subjects, with a leaning towards commerce and industry. About the age of 16, after five years' instruction, nearly all pupils take the "School Leaving Certificate Examination." The majority leave school at this stage, but many stay on till 18, when they take the "Higher School Certificate Examination." Both are conducted by University Examining Bodies, approved by the Board of Education. It is now generally expected that a student will have passed the "Higher School Certificate" before admission to a university.

Teachers in the secondary schools are not, like their colleagues in the elementary schools, expected to possess certain prescribed qualifications laid down by the Board. Nearly all are university graduates, or possess special qualifications for their particular subjects. Unlike the high schools in America, these schools seldom exceed 500-600 in enrollment.

Full Time Junior Technical Schools, Trade Schools, etc. These schools generally prepare their pupils mainly for industry and commerce. Pupils in these schools are generally admitted at the age of 13 and under to instruction for two or three years. They include Technical, Trade, Commercial, Art, Nautical Training, and Housewifery Schools.

Further Education. There is a wide range and variety of education provided quite apart from that of university education. This extends from the part-time education of the evening institutes to the senior full-time courses of the larger Technical, Commercial, and Art Colleges. The part-time courses are

generally held in the evening, though there are many daytime classes, and cover almost every range of subject from the preliminary technical, preliminary commercial, rural and domestic of the junior part-time courses, to that of the advanced courses of the engineering, building, chemical, and printing trades. Though these courses are mainly vocational, courses of a general character are also provided. The full-time courses are a preparation for employment in building, engineering, commerce, art, domestic crafts, etc., and in many cases National Diplomas are issued at the end of the course. Students attending part-time and full-time take a wide variety of examinations conducted by such bodies as the City and Guilds of London Institute, Institute of Bankers, and Institute of Chartered Accountants. The Board of Education has also established a scheme in cooperation with Professional Institutions concerned for the award of National Certificates in mechanical engineering, electrical engineering, chemistry, naval architecture, building, textiles, and commerce.

Adult Education. This refers to the provision of liberal, practical, and recreational instruction for persons of mature age as distinct from the vocational and general education referred to above as "Further Education". This type of education is provided by the following organizations:

Universities and University Colleges, in
Voluntary Organizations,
Local Education Authorities,
Collegiate and Other Institutions,
Charitable Trusts,

Universities and University Colleges, in cooperation with the Workers' Educational Association, provide extra-murally: (a) three years' Tutorial Classes equivalent to the standards for an honours degree, and (b) less advanced Sessional Courses. These joint committees also employ full-time tutors on this work.

As an indication of the type of work carried out, the Workers' Educational Association organizes a large number of one-year and terminal courses, and organized rural schemes for Adult Education. The Federation of Women's Institutes has 5,700 institutes with a membership of 327,800, and organizes classes on such subjects as literature, history,

music, drama, craftwork, hygiene, and food production and preservation.

The Local Education Authorities organize thousands of classes for adults, mainly in domestic subjects, handicrafts, hygiene, music, physical training, elocution, literature, and science.

The Special Services. Safeguarding the health and general welfare of children is part of the educational system in Britain. The Board of Education has a health department which supervises, while the actual work is carried out by the Local Education Authorities through their medical and nursing staffs. Children are examined medically, not less than three times during their school life: when they enter school, and at the ages of 8 and 12. Any defects discovered are called to the attention of the parent and, if necessary, treatment has to be found by the Local Education Authority for certain defects of eyes and teeth, tonsils and adenoids, etc. This treatment has been greatly extended during recent years, and now generally includes treatment of crippling defects, heart disease, and rheumatism.

Local Education Authorities provide education for defective children in special schools for the blind, deaf, physically defective, mentally defective, and the epileptic. For the blind and deaf, attendance is compulsory from the ages of 5 to 16, and for the other defectives from 7 to 16. Schools can be provided by education authorities, health authorities, or voluntary bodies.

Local Education Authorities may provide meals, free if necessary, for children who, through lack of food, are unable to profit from elementary instruction. Since the war this provision has been greatly extended, and it is hoped soon that all children will be able to secure meals in schools. In addition to meals, milk is also provided daily at a cheap rate, or free, if necessary.

Nursery schools are for children of 2 to 5 years of age. Attendance is optional.

Training, Salary and Superannuation of Teachers. It is not now possible (with few exceptions) for a teacher in the public elementary schools to be recognized by the Board of Education without having undergone an approved course of training. Teachers in secondary schools are generally graduates of such an approved course of training,

and more are taking a professional course of training than formerly. There is no prescribed course of training for teachers in Technical schools.

This training is given in Training Colleges provided either by Local Education Authorities or Voluntary Bodies, and in the Training Departments of the Universities. Elementary school teachers, after having completed their education in a Secondary School, proceed at the age of 18 to a Training College for two years. There are 70 Training Colleges, 22 provided by Local Education Authorities and 36, by religious bodies. The remaining 12 are undenominational, and are maintained by voluntary bodies.

Training at a university training department consists in spending a fourth year at a university after having completed a degree course of three years. There are 22 such training departments.

There are also 11 special training colleges for the training of teachers of domestic subjects, and at least four colleges for the training of teachers of physical education.

At the end of their training, teachers are examined by regional joint boards composed of representatives of universities, training colleges, and other bodies interested in the training of teachers. Students at the university training departments are examined by the universities. A student's teaching ability is assessed by an Inspector of the Board in consultation with the training college or department. Recognition by the Board depends on the successful passing of the examination plus twelve months of satisfactory teaching service.

Salaries are paid in accordance with the national scales (Burnham Scales), arrived at by joint committees of teachers and Local Authorities and approved by the Board of Education.

The State Teachers Superannuation Scheme is as follows: teachers contribute 5 per cent and employers 5 per cent. At the age of 60, or previously if a health breakdown has occurred a teacher is entitled to a life pension of $1/80$ and a lump sum of $1/30$ of the average yearly salary for the last five years of service for each completed year of service up to a maximum of 40 years. Thus a teacher earning \$2,100 a year would, after 40 years of service, receive a life pension of

ENGLAND AND WALES, EDUCATION IN

\$1,050 plus a lump sum on retirement of \$2,800. There is also a death gratuity, if death occurs before retiring age, of a year's salary or 1/30 of the annual salary for the last five years for each year of service, whichever is larger.

Universities. The universities of England and Wales which have the power of conferring degrees are the following: Birmingham, Bristol, Cambridge, Durham, Leeds, Liverpool, London, Manchester, Oxford, Reading, Sheffield, and Wales. There are also the university colleges of Exeter, Nottingham, Southampton, from which students generally take the degrees of London University. Oxford, Cambridge, Wales, Durham, and London comprise groups of a number of autonomous colleges.

To aid poor students to proceed to the universities, there are many financial sources available. The Board of Education grants state scholarships; local authorities give scholarships, grants, and loans; and the colleges themselves are in many instances well endowed. There are also many private trusts and benefactors, so that a total of between 40 per cent and 50 per cent of the students at the universities are assisted from these many sources.

The universities are completely independent of both state and local authority control, despite the fact that they receive annually the sum of more than twelve million dollars (pre-war rate of exchange) from the state and the L.E.A.'s. To ensure their independence, the money from the state is paid direct through a University Grants Committee, composed of representatives of the universities, with an office and staff of its own. There is no inspection and no enquiries are made as to how the money is spent, though the Committee submits a report periodically to the Exchequer.

Statistics.

Population of England and Wales	41,215,000
<i>Public Elementary Schools</i>	
Total Number of Pupils	5,035,000
Pupils in Council Schools	3,513,000
Pupils in Voluntary Schools	1,522,000
Total Number of Teachers in Public Elementary Schools	167,000
Number of Certificate Teachers in Public Elementary Schools	132,000

Secondary Schools

Total Number of Pupils in Schools Recognized as Efficient (including Preparatory Schools)	569,000
Pupils in Grant-aided Secondary Schools	470,000
Pupils in Other Recognized Schools (including Preparatory Schools) ..	99,000
Total Number of Full-time Teachers in Grant-aided Schools	25,000
Number of Full-time Graduate Teachers in Grant-aided Schools	20,000

Vocational Schools and Further Education

Number of Students	
In Junior Full-time Courses	31,000
In Senior and Other Full-time Courses	19,000
In Part-time Day Classes	59,000
In Part-time Evening Classes	1,200,000

Adult Education

Number of Students	58,000
(This figure excludes students in certain Adult Education Courses recognized under the Regulations for Further Education—such students are included in the 1,200,000 figure given above.)	

Training Colleges and Departments

Number of Students	
In Training Colleges	9,600
In University Training Departments .	4,800
In Domestic Science Training Colleges	1,300

Universities

Number of Full-time students	49,000
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Proposals for Reconstruction. Considerable attention has been given to the reconstruction of the educational system after World War II began, and plans have been published by official and voluntary agencies. The general trend is in the direction of increased educational opportunities with increased attention to health and security of children, increased provision for nursery schools, and the raising of the age of compulsory attendance to 15 or 16, followed by compulsory part-time education in continuation schools. It is planned to provide some form of secondary education for all from the age of eleven on, either in schools of different types or in "multilateral schools" corresponding to the American comprehensive high schools. Access to the universities is to be facilitated and increased facilities for adult education are to be provided. Various proposals have also been made for the establishment of youth organizations either on a voluntary or on a compulsory basis. The improvement of teacher preparation is recognized as important. Some reorganization of the administrative areas to make possible the provision of equality of educational opportunities is being considered. Other problems which

have to be met include the status of "public schools," the place of private schools, the future of non-provided elementary schools, and the status of religious instruction.

E.D.

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ENGLISH, TEACHING OF. In the broad sense, the teaching of English embraces all instruction conducted in the English language. Language patterns are determined by the language environment. For this reason the problem of the improvement of reading and of expression in language has been attacked most successfully in those schools which have furnished specific guidance wherever language situations are encountered.

English as a specialized branch of instruction has come to embrace numerous functions unknown in an earlier period when it included only classic literature and mechanical language skills. Today the development of reading competence is recognized as a responsibility of the high school and college as well as the lower elementary school. The ability to read the newspaper with understanding and critical discrimination is now widely regarded as a major objective for English in a time when newspapers rank first among the materials read by adults and play so vital a part in the determination of public opinion. Teachers of English in leading secondary schools no longer restrict their reading lists to the classics, but encourage wide reading in books and magazines of all kinds, with the purpose of improving the quality and extending the range of young people's everyday reading. Radio drama and photoplay take their place with the best in the history of the English and American theatre as subjects of analysis and enjoyment. In the field of language expression the modern teacher of English aims at clarity, force, and precision in the forms of communication most frequently encountered in the lives of youth

today — the conversation; the interview; group discussion; the informal floor talk; the friendly letter; the business letter; the personal journal; and imaginative writing for recreation, self-expression, or persuasion.

The new point of view places emphasis upon the language and reading needs of the learner. Literature is read not so much for factual knowledge of authors' biographies or the contents and structure of famous literary units as for the increased understanding of human behavior and grasp of human values which great writing affords. Reading becomes a key to the whole world of language-in-print which even to the non-academically minded yields new horizons, extends the experience range immeasurably, and promotes effectiveness in social living. For limited book lists and prescribed book reports, programs of free reading are substituted.

Classroom practice has been correspondingly modified. Discussions center about problems, with illustrations taken from the wide range of books and characters represented by the reading of individual students; or about literary types, with poetic or fictional or stylistic values discovered through exploration of the works of many writers, in many nations and many periods. Reading becomes a means of seeing individuals in their reactions to other individuals or to the stresses of society as a whole; or in other moods it provides essential information or on occasion wholesome escape from anxiety or fatigue. As a result, the teacher of English seeks to become familiar with a vast diversity of reading matter appropriate to all types of adolescent readers.

Mere volume of reading, however, is not in itself a sufficient objective. The totality of the reading program should eventuate in a broader understanding of and a sturdier devotion to the values upon which the democratic society is founded. English classes are increasingly studying literary materials from a variety of sources from the point of view of their significance in the long struggle of mankind for greater freedom, equality of opportunity, and security against want and ignorance. The social issues are commonly examined largely with relation to their impact upon individual lives.

Far-reaching changes have occurred also in the field of the teaching of language expres-

sion. Research studies overwhelmingly demonstrate the futility of instruction in formal grammar (isolated exercises in syntax and inflection) as a means of improving effectiveness or correctness in speaking and writing. Standards of conventional usage are now taught by leading teachers in direct relation to the language needs of students. Textbooks in English are eliminating many formal rules derived from the grammar of classical languages and are deriving their data from the facts of the living language as reported by competent linguists. Emphasis is placed upon the communication of meaning through the comprehensive exploration of verbal, social, and psychological contexts. The enriched program in English instruction now embraces a highly varied combination of social situations involving written or spoken language. Teacher-assigned topics for composition are giving way to purposeful, real-life communication in the typical English classroom. Corrective work is becoming a part of the service function of the English teacher in connection with the genuine expressional needs of youth.

Finally, the sharp separation between instruction in reading and instruction in expression is disappearing. The semantic approach (*q.v.*) has united the two in its emphasis on language for meaning in the two-way process of reading and writing, speaking and listening. And the new plan of curriculum organization around student needs and purposes has drawn both phases of language communication into the process of social living and personal fulfillment through language. (See LANGUAGE ARTS; SPEECH EDUCATION; SPELLING; READING, METHODS OF TEACHING.) J.J.D.B.

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ENRICHED CURRICULUM—See CURRICULUM, ENRICHMENT OF.

ENVIRONMENT, SCALES FOR MEASURING. Even to measure roughly an individual's psychological environment—i.e., the sum-total of stimuli to which he reacts—is obviously a task so complex as to be impossible. Frequently, however, it is desirable to obtain some measure of certain environmental factors likely to exert an important influence on a child's development, such factors as the socio-economic status of his family or the general cultural level of the neighborhood. There are available for this purpose several scales and schedules purporting to measure these and other important environmental variables in a standardized way. The measurement consists of giving ratings of a certain degree of goodness or badness, as indicated by the scale, to specified conditions and objects which are found in that particular home or neighborhood or are lacking. Naturally, there is often great disagreement as to what constitutes goodness and badness, and as to whether the piling up of a high score owing to an abundance of good material conditions actually means a continuing increase in the favorableness of that environment for child growth and adjustment.

When the scale is simply defined in terms of a more specific criterion, for example socio-economic status, without the connotation that high status means a favorable environment, then the scale itself can be used to test whether scores on the scale are correlated with high scores on adjustment, achievement, intelligence, etc. The particular environment-

al variable selected for rating may also be one that it is deemed necessary to keep constant while the interrelationship of other factors is studied.

In any event, there is not only the question of the validity of the scale, but also the degree to which the ratings can be made reliably. Such measures have been developed by Burdick, McCormick, Sims, Chapin, Van Alstyne, and others. The early Whittier Scale for Grading Neighborhood Conditions (1919) and the more recent Minnesota Home Status Index (1936) for the measurement of urban home environment illustrate the general type of content to be found in these measures. In using the Whittier Scale an observer rates a neighborhood on each of the following characteristics: (1) neatness, sanitation, and improvements; (2) recreational facilities; (3) institutions and establishments; (4) social status of residents; (5) average quality of homes. In using the Minnesota Index an interviewer asks numerous specific questions bearing upon the home's facilities for children, its sociality, and cultural, economic, occupational, and educational status. On the basis of the information thus obtained, an index of each of these factors and a general home status profile can be determined.

Such environmental measures are sometimes criticized because they deal with things and factors in the environment and not with the effect of these things and factors upon the child. They record, for instance, how many books there are in the home and how much formal schooling the parents have had. They rarely take into account how much use the child makes of the books and what kind of conversations the parents have with their child. Not only are these criticisms important when high and low scores are interpreted in terms of favorableness-unfavorableness, but they also affect the possibility of valid comparison between two scores made on the same scale, unless that scale is very specifically named and it is understood just how narrow the variable is that has actually been measured.

For the teacher the measurement of the environment presents different problems than it does for the research worker. The teacher wants to know what there is in the home or neighborhood that can have an effective influence (good or bad) on the child, and what the effect actually is. The danger in his use

of existing rating scales is that he will infer certain influences which actually do not exist. If questionnaires on home conditions are used by the school, whether these call for ratings or for mere enumerations, they may well form the basis for a study and analysis of home influences. Their data should not, as they stand, form the conclusions upon which the teacher bases his guidance of the child. One of the most important reasons for the teacher's studying the child's home and community is so that he can help him to interact with those environmental factors which will be beneficial to him. Available scales and questionnaires may prove useful. Often, however, the school will have to construct a scale to suit its own community.

B.B.F.

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EQUATED SCORES—See SCORES, CON-
VERSION OF.

EQUATING GROUPS. Two or more groups are described as *equivalent* when they approach equality in one or more characteristics which may affect the operation of the experimental factor. *Equating* of groups in controlled experimentation is used to determine the net influence of an experimental factor. Equivalence of groups does not require that all the subjects participating in the experiment be equivalent, but it does mean that all the groups participating be equivalent. Groups may be equated in several ways. The most precise method is to pair individuals with respect to each of many relevant, measured traits. If individuals are so paired, the variability and the average scores of the groups will be identical. A modification of the ideal condition in the direction of feasibility is to pair individuals on the basis of a composite of the various traits. A more practical modification calls for the matching, not of individuals, but of groups on the basis of average score and variability

EQUIPMENT, SCHOOL — ESSAY EXAMINATION

in each of several traits. The next procedure employs the matching of groups in average and variability with respect to the composite scores of several traits. A further move in the direction of practicability eliminates the consideration of the variability of the groups, retaining only equality in average score. Finally, the remaining trait might not even be measured but equated with respect to it left to chance alone. Where the number of subjects is large, and certain conditions are observed relative to random sampling (*q.v.*) procedure, chance is a highly exact basis for securing equivalent groups. Unfortunately, chance selection of whole classes, which is frequently the only practicable procedure, does not satisfy the conditions of random sampling and consequently may not provide truly equivalent groups. (See RESEARCH, EXPERIMENTAL.) H.G.

EQUIPMENT, SCHOOL — See BUILDINGS, SCHOOL.

EQUIVALENT TESTS—See RETESTING.

ERROR—See CONSTANT ERROR; VARIABLE ERROR.

ERROR COUNT — See FREQUENCY STUDY; LANGUAGE ARTS.

ERROR OF ESTIMATE—See PREDICTION OF SUCCESS.

ESCAPE TENDENCY. A behavior mechanism adopted by an individual to escape emotional conflict or other unpleasant realities. Thus, a child may blame a teacher and not his lack of study for his low marks; or the adolescent girl may escape from uninteresting reality by identifying herself with the heroine in a movie or novel. (See DAY DREAMING; MENTAL HYGIENE.) R.V.M.

ESSAY EXAMINATION. Essay examinations receive their name from the fact that they consist essentially of questions the answers to which are in the form of written expression by the pupils, or of topics or broad questions upon which the pupil writes essays or discussions. They are often termed *traditional* or *subjective* examinations in contrast with the so-called *new-type* or *objective* examinations.

The critics of the essay examination have centered their attack mainly upon its unre-

liability. Since about 1910, studies in many lands, covering a variety of subjects both on the high school and college levels, have shown wide disagreement among presumably equally competent teachers marking the same papers. Even more disturbing has been the discovery that the agreement is but little, if any, better between two series of marks assigned the same papers by the same teachers after an interval of time. A large part of the unreliability of the essay examination must be ascribed, therefore, to unreliability of *marking* or *grading* the examination. There is also evidence that the examination itself constitutes an undependable sampling of the student's knowledge. A study by Talbott and Ruch, for example, showed that the essay test called forth less than half the student's knowledge, as revealed by an objective test, and required twice as much time. Reliability coefficients obtained by correlating two different essay examinations, presumably covering the same material, have in general shown no closer agreement than those obtained from different markings of the same papers. The validity of the essay examination is reduced by the fact that so many extraneous factors enter into the writing and the grading of the answers. For example, a student's grade on a history paper is often influenced not only by his understanding of history but also by his ability to express himself in a manner that pleases the reader. The grade may be affected to no small degree by the unintentional comparison of each paper with the one previously read by the teacher; a mediocre paper may look good to a teacher who has just read an inferior answer, while it may be rated severely if it has been preceded by a superior paper.

Those who favor the essay examination have based their preference mainly upon its alleged superiority for measuring and for achieving certain important educational objectives. Unfortunately, little experimental evidence exists for determining just what are the unique functions measured by the essay examination. Logical considerations, however, suggest that the essay form of examination should be valid for such courses as English composition and journalism, and for certain aspects of other subjects, such as the student's ability to see relationships, to make evaluations and summaries, and to

apply his knowledge in an organized, effective manner to new situations. There is considerable statistical support for the conclusion that when students expect the tests to be wholly or partly of the essay type they are more likely to employ such desirable study procedures as making outlines and summaries and seeking to discover relationships and trends than they do when objective tests are used exclusively. This constitutes a strong argument against abandoning the essay examination altogether. There seems no escaping the fact that the nature of the examination influences the way students study as well as what they study.

Many of the objections raised to the use of essay questions are criticisms not so much of the essay question itself as a measuring instrument, as of the popular errors in the construction of the questions and in the scoring of the answers. The use of essay questions has much to commend it, provided the questions are constructed and rated wisely. Several suggestions for improving the construction and use of essay examinations deserve the teacher's attention. The use of the essay examination should be restricted to the measurement of those functions to which it appears best suited. Thus, the essay question is used more appropriately when it seeks to measure the student's ability to interpret and evaluate than when it elicits only the student's recall of specific factual material. Essay questions should be used in combination with objective questions to afford a more valid sampling of the student's ability. Optional questions should be eliminated since it is rarely possible to make all the questions on an examination of equal difficulty. The question should be worded so carefully that it indicates to the student the kind of answer that is expected of him. "Discuss the Monroe Doctrine" is a vague question, though it is of a type used widely. It is preferable to limit the student's answer, as in the question: "How have our changes in the interpretation of the Monroe Doctrine been related to changes in the foreign policy of the United States?" Keys of acceptable answers and definite instructions for marking the papers should be prepared before the teacher rates the answers; the keys may be modified after the teacher has applied them to a sampling of the answers. The

answers should be rated question by question rather than paper by paper so that the teacher reads all the answers to one question before proceeding to read all the answers to the next question. Any device for concealing the student's name until the answers have been read will eliminate another irrelevant consideration from influencing the ratings.

Such suggestions as those given above should improve the validity and reliability of the essay examination, but so far no way has been suggested for reducing the time required for the students to write the answers or for the teachers to evaluate them. In fact, the careful construction of essay questions and rating of answers will make even heavier demands on the teacher's time. (See EVALUATION; MEASUREMENT IN EDUCATION; AND OBJECTIVE TESTS AND EXAMINATIONS.)
C.C.R.

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ESSENTIALISTS, THE. Michael J. Demiashkevich (1891-1939), proposed the name *Essentialists* to designate adherents to educational theories that emphasize the transmission to each generation of the basic elements of human culture as the primary function of organized education. The significant contrast is with the adherents of the theories that emphasize education primarily as the promotion and direction of individual growth or development. Since the latter teachings are today represented chiefly by the so-called "Progressive" school of educational theory, the Essentialists have been regarded, not without reason, as critics and opponents of Progressivism.

Unlike the Progressives, the Essentialists have no large and influential organization to propagate their doctrines. In February, 1938, a very small group, numbering fewer than a score of persons, formed an "Essentialist Committee for the Advancement of American Education" under the leadership of Professor Demiashkevich and of F. Alden Shaw, headmaster of the Detroit Country Day School.

This Committee was organized at the time of the mid-winter educational meetings, which in that year were held at Atlantic City, and which, as usual, brought to the place of meeting thousands of educational workers from all parts of the country. It became noised about that this Essentialist group would, figuratively speaking, take up guns against the Progressives. This rumor had "news" value, and a statement regarding the Committee, together with some fragments from a set of theses that had been prepared for discussion but which had not been formally adopted or officially released, was sent out by reporters and received the attention of the press throughout the country. As a result the terms *Essentialists* and *Essentialism* became current, literally overnight, as the antitheses of *Progressives* and *Progressivism*.

Although the Essentialists are distinctly opposed to many of the tenets of the Progressives, they have had no disposition to deny that definite benefits have come to American education from certain theories and practices that the Progressives have supported and propagated. The differences between the two groups are primarily differences in emphasis. Through the long history of formal education, and formal education is almost as old as civilization itself, certain dualisms have developed and persisted, and educational theory for centuries has struggled to resolve them. These dualisms have been reflected in such paired opposites as interest *vs.* effort, freedom *vs.* discipline, individual desires *vs.* social demands. More recent discussions have added such paired opposites as immediate goals *vs.* remote goals, pupil-initiative *vs.* teacher-initiative, psychological organization *vs.* logical organization, activities *vs.* subject-matter.

In general, while both schools of theory recognize that each term of these pairs of apparent opposites represents a needed function of education, and while both schools attempt to find some integrating principle that will resolve the dualisms, the Progressives give the primary emphasis to the first of each pair of terms: interest, freedom, individual desires, immediate goals, pupil-initiative, psychological organization, activities; the Essentialists give the primary emphasis to the second term of each pair: effort, discipline, social demands, remote goals, teacher-initiative, logical organization, subject-matter.

From the point of view of the actual content and administration of the educational program, these differences in emphasis, which seem slight in theory, may lead to wide divergences in practice. Consistent Progressive practice, for example, frowns upon the assignments of learning tasks "imposed" by the teacher. All learning, it is held, should be at least motivated by the learner's recognition of its value; it would be even better if a demand for the learning came spontaneously from the learner's "felt need" for something to help him solve a problem or realize a purpose. The Essentialist would by no means object to learning that stems from such inherent motives and needs; he would not for this reason, however, assume that all learning activities must so originate; he would insist, indeed, that it is the primary duty of the teacher to see to it that the essentials are mastered by the learner systematically and sequentially, and that such systematic and sequential learning can be made by skillful teaching not only acceptable to the learner but often, and almost always in the end, interesting and inherently rewarding.

While at the present time the Progressive school of educational theory derives comfort and sustenance in large part from a single school of philosophy, Pragmatism, the Essentialists are drawn from many philosophical camps: Idealism, neo-Realism, Naturalism, Aristotelianism, and neo-Scholasticism. Such concepts as duty, system, order, thoroughness, and industry are emphasized by some Essentialists, who lean toward Idealism, neo-Scholasticism, or Aristotelianism, as partaking of the nature of absolutes, and by other Essentialists, who are neo-Realists, as ideals which race-experience has enthroned as standards of permanent human value. Progressivism follows Pragmatism in rejecting all absolutes and all assumptions of anything akin to permanent values.

It is highly probable that the controversy between the Essentialists and the Progressives, which flared out suddenly in February, 1938, is largely responsible for a greatly increased interest upon the part of educators in the philosophical systems that lie back of contemporary educational theories. The development of American education during the past generation has been powerfully influenced by the advances in what may be called the sci-

ence of education, especially through the rise and development of the measurement movement. It is significant that the advances in educational science, impressive though they are, have not as yet rendered any less important the activities of the educational theorist. It is indeed worthy of note that the towering figure in American education over a period of more than forty years has been John Dewey, who is not a scientist but a theorist—a philosopher. It should be remembered, too, that while Dewey's teachings are responsible for the latter-day teachings of the Progressives, he himself has indorsed, although not by mentioning names, some of the most cogent criticisms of Progressivism advanced by the Essentialists. W.C.B.

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ETHICS, PROFESSIONAL. In keeping with the widespread movement towards codes of ethics in the professions and many businesses during recent years, the National Education Association adopted a code of ethics in 1929 which was revised in 1941. The revised code follows:

PREAMBLE

Believing that true democracy can be achieved best by a process of free public education made available to all the children of all the people, that the teachers in the United States have a large and inescapable influence in fashioning the ideals of children and youth, and that such responsibility requires the services of men and women of high ideals, broad education, and profound human understanding, and in order that the aims of democratic education may be realized more fully, that the welfare of the teaching profession may be promoted, and that teachers may observe proper standards of conduct in their professional relations, the National Education Association of the United States proposes this code of ethics for its members.

The term "teacher" as used in this code shall include all persons directly engaged in educational work, whether in a teaching, administrative, or supervisory capacity.

ARTICLE I—RELATIONS TO PUPILS AND THE HOME

Section 1—It is the duty of the teacher to be just, courteous, and professional in all his relations with pupils. He should consider their individual differences, needs, the interests, aptitudes, and environments. He should not tutor pupils of his classes for pay, nor should he refer them to any member of his immediate family for tutoring.

Section 2—The professional relations of a teacher with his pupils demand the same scrupulous care that is required in the confidential relations of one teacher with another. A teacher, therefore, should not disclose any information obtained confidentially from his pupils.

Section 3—A teacher should seek to establish friendly and intelligent cooperation between home and school, ever keeping in mind the dignity of his profession and the welfare of the pupils. He should do or say nothing that would undermine the confidence and respect of his pupils for their parents. He should inform the pupils and parents regarding the importance, purposes, accomplishments, and needs of the school.

ARTICLE II—RELATIONS TO CIVIC AFFAIRS

Section 1—It is the obligation of every teacher to inculcate the principles of democracy. He should direct full and free discussion of appropriate controversial issues with the expectation that comparisons, contrasts, and interpretations will lead to an understanding, appreciation, acceptance, and practice of the principles of democracy. A teacher should not use his classroom privileges and prestige to promote partisan politics, sectarian religious views, or selfish propaganda of any kind.

Section 2—A teacher should recognize and perform all the duties of citizenship. He should subordinate his personal desires to the public good. He should be loyal to the school system, the state, and the nation, but he should recognize his right to give constructive criticisms.

Section 3—A teacher's life should show that education makes people better citizens and better neighbors. His conduct should not offend the accepted pattern of behavior of the community in which he serves.

ARTICLE III—RELATIONS TO THE PROFESSION

Section 1—Members of the teaching profession should dignify their calling on all occasions and should never minimize the importance of their services to society. On the other hand, they should not indulge in personal exploitation.

Section 2—A teacher should encourage the ablest individuals to enter the teaching profession and discourage from entering those who are using it merely as a stepping-stone to some other vocation.

Section 3—It is the duty of the teacher to maintain his efficiency by study, travel, and other means of keeping informed on trends in education and the social order.

Section 4—Every teacher should have membership in his local, state, and national professional organization, and should participate actively and

unselfishly in them. Professional growth and personality development are the natural product of such professional activity. Teachers should avoid the promotion of organization rivalry and divisive competition which weaken the cause of education.

Section 5—While not limiting their services by reason of small salary, teachers should insist upon a salary scale commensurate with the social demands laid upon them by society. They should not knowingly underbid a rival or agree to accept a salary lower than that provided by a recognized schedule. They should not apply for positions for the sole purpose of forcing an increase in salary in their present position; correspondingly, school officials should not refuse to give deserved salary increases to their employees until offers from other school officials have forced them to do so.

Section 6—A teacher should not apply for a specific position unless a vacancy exists. Unless the school system otherwise prescribe, he should file his application with the chief executive officers.

Section 7—Since qualifications should be the sole determining factor in appointment and promotion, the use of pressure on school officials to secure a position or to obtain other favors is unethical.

Section 8—Testimonials regarding teachers should be truthful and confidential, and should be maintained as confidential information by the school authorities receiving them.

Section 9—A contract, once signed, should be faithfully adhered to until it is dissolved by mutual consent. Ample notification should be given by school officials and teachers in case a change in position is to be made.

Section 10—Democratic procedures should be practiced by members of the teaching profession. Co-operation should be predicated upon the recognition of the worth and the dignity of individual personality. All teachers should observe the professional courtesy of transacting official business with the properly designated authority.

Section 11—School officials should encourage and nurture the professional growth of all teachers by promotion or by other appropriate methods of recognition. For school officials to fail to recommend a worthy teacher for a better position outside their school system because they do not desire to lose his services is unethical.

Section 12—A teacher should avoid unfavorable criticism of other teachers except that formally presented to a school official for the welfare of the school. It is unethical to fail to report to the duly constituted authority any matters which are detrimental to the welfare of the school.

Section 13—Except when called upon for counsel or other assistance, a teacher should not interfere between another teacher and a pupil in any matter.

Section 14—A teacher should not act as an agent, or accept a commission, royalty, or other reward for books or other school materials in the selection or purchase of which he can influence, or concerning which he can exercise the right of decision; nor should he accept a commission or other compensation for helping another teacher to secure a position.

ARTICLE IV—COMMISSION ON PROFESSIONAL ETHICS

There is hereby established a Commission on Professional Ethics operating under the Board of Directors of the National Education Association. This Commission shall consist of five members of the Association to be appointed by its president for terms of five years each, one term expiring on July first of each year.

In order that the Commission may begin functioning at once, it is recommended that the president for 1941-42 appoint five members who will draw for one-, two-, three-, four-, and five-year terms, respectively. Thereafter one member shall be appointed each year for a five-year period. The Commission will select its own chairman.

It shall be the duty of the Commission to study and to take appropriate action on cases of violation of this Code referred to it. The Commission also shall be responsible for publicizing the Code, promoting its use in institutions for the preparation of teachers, and recommending needed modifications.

If, when a case is reported, it is found to come from a state which has a code commission, such case shall immediately be referred to said state commission for investigation and action. In the case of a violation reported from a state which has neither a code nor a code commission, or where a state has a code but no code commission, the NEA Code Commission shall take such action as seems wise and reasonable and which will impress members with the importance of respect for proper professional conduct. Such action shall be reported to the chief school officers of the community and the state from which the violation is reported.

The Commission is further vested with authority to expel a member from the National Education Association for flagrant violation of this Code.

Almost two-thirds of the state teacher's associations had adopted codes before 1929. These codes of professional ethics serve as a guide to proper conduct among school administrators, teachers, and pupils in the daily relationship among older members. A code of ethics serves to bind the workers in a profession together and to give them a greater feeling of mutual confidence, esteem and respect. It demonstrates to the public the ideals of the profession.

D.H.C. and A.R.A.

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ETIQUETTE AS A SCHOOL SUBJECT. The teaching of the manners of the

day, the common matters of courtesy and etiquette, is a very old practice in schools. In the middle ages it was a matter of teaching the practices of chivalry. In the modern school it has received attention from a number of different angles. In the elementary school and to a certain extent in secondary schools, courtesy is taught through instruction and practice as a matter of good behavior, an expression of character. Such teaching stresses the fact that good manners should be only the surface expression of real character, that courtesy is born of thoughtfulness.

Another emphasis, given particular attention in secondary schools and colleges, is well expressed by a chapter titled, "Good Manners, a Vocational Asset," in a workbook on "personal analysis." This chapter impresses the student with the practical, selfish value of good manners, that to do the "right" thing pays dividends in vocational life. This emphasis has had considerable vogue and is strongly stressed in the "how-to-win-friends-and-influence-people" type of personality development fostered in many schools.

Clearly, the development of social polish, of courteous and mannerly behavior, and the mastery of the niceties of social living are no longer regarded as an aim only of the exclusive finishing school. The methods employed to teach good manners and etiquette are of various sorts. Etiquette is taught in some schools as a regular subject of instruction through the use of textbooks and all the other accoutrements of formal instruction. More commonly, however, good manners are taught as part of the work of less formal classes in guidance or through discussions in home rooms and elsewhere of the desirable qualities of personality. In elementary schools the give and take of classroom and school life offers numerous occasions for informal consideration of good manners. Considerable attention is given to etiquette in commercial courses, especially to the etiquette of business offices. In home economics courses attention is given to the etiquette of dining and social affairs.

That young people, especially in the high school and college, are concerned about etiquette is shown by studies of their interests and by the experience of teachers and guidance counselors. That their concern must find expression in experiences that will lead to

the development of those fundamental traits of character which will make good manners natural and easy is agreed to by educators.

G.E.H.

EURHYTHMICS, DALCROZE. This is a system of physical response to music in which the learner expresses through movement various musical rhythms and designs. It originated with Jaques-Dalcroze, eminent Swiss music educator (Vienna, 1865-). The program took form as Dalcroze experimented with methods for improving the rhythmic response of music students. He was seeking not only keen rhythmic perception but an improved sensitivity to musical components, such as dynamics, meters, phrases, melodic line, harmonic structure, tension, and relaxation. Students who pursue the course through several years apply the physical movement to refined instrumental technic and give special attention to the art of improvisation. The striking results of this work has spread to the musical capitals of the world through Dalcroze institutes. In America it has received its impetus by the work of Dalcroze's pupils at major universities and conservatories.

Purposes. Dalcroze has outlined the essential purposes of his system in the book, *Eurhythmics, Art and Education*, (A. S. Barnes and Company, New York, 1935). He states (page 3) that "[The object of] the rhythmic method of gymnastics... is to arouse and develop, by repeated exercises, the natural rhythms of the body." He maintains (page 106) that "nine out of ten children take up the study of a musical instrument without having music within themselves. Hence, the teacher has a dual task... to initiate into the mechanism of the instrument a muscular apparatus ignorant of its own mechanism, and also to bring his pupils into a condition to express, on an alien body, feelings which their own body has never experienced."

In addition to these purposes, Dalcroze claims other values for his system. He maintains that it strengthens the will, improves the memory, develops character, and "enriches the brain." Those who question the validity of faculty psychology attach little significance to these generalizations.

Use in public education. Teachers

generally accept the basic thesis that children need to feel music physically before they can express it. Adaptations of the Dalcroze method appear to rest on these assumptions: (1) The physical co-ordination of musculatures may be expected to transfer to related activities. (2) Large muscular movement is more vivid and meaningful as an embodiment of specific musical designs than are narrow musculatures or mere intellectual concepts. (3) Body rhythmic help release certain emotional tensions and consequently promote integration of personality. (4) Rhythmic movement of the body in company with other people tends to promote sociability. (5) Eurhythmics can be an enjoyable experience which may arouse a desire for other musical activities.

The Dalcroze method usually appears in public schools only in some form of adaptation because of limitations of teacher training, plant facilities, and purposes of the school. Instructors of music usually attempt to transfer from the physical movement to actual musical performance as soon as practicable. Physical education teachers generally carry the program toward a culmination in the dance. Some common uses of eurhythmics at different levels are given below.

In primary grades, children experience beats through walking, clapping, hopping, galloping, and swinging their arms to music. They walk the rhythm of songs to identify note values. At first, such terms as "walking notes," "running notes," and "standing notes" are used. From this terminology they progress to the traditional names and the staff notation. Children sense the form of compositions by discovering the number and similarity of phrases. While singing or hearing a song they move their arms or walk in a continuous line until a "resting place" occurs in the music; then they change the direction of movement until another phrase begins.

In the higher grades, children adapt some of the arm movements to the beating of time. In more advanced groups they may walk with an accent recurring in one meter and move their arms with an accent in another meter.

At the high-school level Dalcroze principles are used for the creation of dances. For example, a class may form two groups,

one becoming an outer circle, the other an inner circle. The students in the outer circle might move in one direction, walking, leaping, and swinging arms according to the melody of a piano composition. The students in the inner circle might move in the opposite direction performing similar movements to a counter melody of the same composition. The Bach *Two-Part Inventions* are sometimes interpreted in this manner.

Where adequate pianists are not available, schools have used phonograph recordings. However, the inflexibility of recordings limit their usefulness, especially when a creative response is desired. Sometimes a drum and vocalization of rhythm are used for accompaniment. Teachers seeking to develop skill in Dalcroze methods generally find it expedient to enroll in eurhythmic classes. Through their personal experience they sense more fully the purposes and technique of instruction. (See MUSIC APPRECIATION; MUSIC EDUCATION.)

L.F.W.

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EUTHENICS. Euthenics is a term used to describe all systematic efforts to improve humanity through changes in controllable environment; for example, improved health through balanced and regular diet, better sanitation and housing conditions, and adequate medical care are classed as euthenic measures.

R.V.M.

EVALUATION. The term *evaluation* frequently is used to refer to a great many informal situations in which one or more persons consider what value has followed from some particular experience. For instance, a class of children with their teacher may look back over the unit of work they are completing and consider what value the activities of the unit have had for them as a class and as individuals. Similarly, a

group of adults who have met together as a workshop group, or as a conference or convention assembly, may evaluate their experience together. They may consider informally in what ways their meetings have been worthwhile and in what ways future meetings may be of even more value to the group and its members. A student preparing to become a teacher may confer with his adviser about the contribution his past experiences have made to his professional growth, and about the potential contribution other experiences might have made. Such evaluations may be made quite subjectively through discussion, or they may be made somewhat more objectively by administering appropriate tests or by having questionnaires answered by the people concerned.

Evaluation may be thought of as a process in which four main questions are considered: (1) What are we trying to do? (2) What are we actually doing? (3) How does what we are doing compare with what we are trying to do? (4) How can we make what we are doing more nearly like that which we would like to do? Stating these phases of evaluation more technically we have: (1) defining the objectives, (2) using evaluative instruments and techniques in determining status and changes in status, (3) using appropriate statistical techniques in interpreting findings, and (4) setting up procedures by which improvements may be put into practice. These four steps constitute a cycle which will be repeated as the continuous process of evaluation goes on. The writings of Ralph W. Tyler⁵ describe, and his evaluative studies³ exemplify evaluation in a complete sense of the word.

If a person, a class, or a curricular program is to be appraised, the objectives must first be made explicit. What is being attempted? The answer to this question will result in a series of statements of objectives, each statement describing a kind of behavior expected of each student in specific situations. (See OPERATIONAL DEFINITIONS.) Such objectives will include some easily measurable forms of student behavior, but the list of objectives will probably include some that are not measured readily. The recall of specific facts and the performance of definite skills, like that of typewriting, will be appraised; but less tangible objectives,

which are of even more importance in living, will also be studied. Evidence should be obtained about other phases of student behavior: attitudes, interests, appreciations, health and other habits, critical thinking (including the ability to apply principles, to interpret data, and to present logical proof), personal-social relations, reading and other skills, philosophy of life, and the ability to interrelate these various aspects of behavior.

The method of evaluation is dependent on the objective to be appraised. Where appropriate standardized tests are available, they are used by evaluators, but the techniques for evaluating what is being done need not be limited to pencil-and-paper tests. For example, no pencil-and-paper test has yet been constructed by means of which the work habits of a student can be appraised adequately. If the work habits of a certain student are to be studied, his methods of working can be observed at regular intervals, and a notation made about them at each observation. These notations over a period of time constitute a record which shows the extent to which the student's work habits have changed during the time he was under observation. Similarly, anecdotal records, (*q.v.*) the recordings of overt behavior in picture or in sound, and student diaries may be utilized in appraising student behavior in process. To evaluate student attainment, one can examine critically such final products as paintings, musical compositions, dramatic performances, as well as oral and written reports. Evaluative reports are characterized by many faceted descriptions. A single instrument or technique of appraisal will yield a series of scores for each student. These multiple scores give a profile picture of the student and make it possible to diagnose difficulties he may be having and to work with him to further his maximum development. According to Troyer⁴, the interpretation of that profile picture is one of several phases of the appraisal process which should be a cooperative enterprise for student and teacher. Responsibility for interpreting and explaining what test scores mean, and for planning further activities in the light of these interpretations, should rest on the student as well as his teacher.

Evaluation is used significantly in curriculum improvement. To have an evaluative

study contribute maximally to the development of a curricular program, teachers, pupils, parents, and all others concerned with the program to be evaluated should participate in the study. An evaluative study should be an integral part of the educative process, continuing as the program continues. Evaluation results will suggest improvements to be made in the program and its objectives. At the same time, the evaluation process itself will contribute to the in-service development of teachers, and to the increased educational understanding of parents and patrons.

When worked out appropriately, an evaluation program will serve many purposes. It will provide a basis for grading, grouping, and promoting students; for reporting to parents; and for advising expenditures of school funds. But it will go beyond that by providing a means for guiding each student wisely; for working cooperatively with parents in promoting educational activities within the community; and for analyzing and improving the basic philosophy on which the school is functioning. (See MEASUREMENT IN EDUCATION.) V.E.

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EVALUATIVE METHOD (RESEARCH) — See RESEARCH METHODS IN EDUCATION.

EXAMINATION OF TEACHERS—See TEACHER EXAMINATIONS, NATIONAL; TEACHERS; RATING OF; TEACHERS RATING SCALES; AND TEACHERS, SELECTION OF.

EXAMINATIONS—See ESSAY EXAMINATION; EVALUATION; MEASUREMENT IN EDUCATION; OBJECTIVE TESTS AND EXAMINATIONS; REGENTS EXAMINATIONS; AND STATE EXAMINATIONS.

EXCEPTIONAL CHILD. Educationally, the exceptional or atypical child is one who deviates mentally, physically, or emotionally from the average to such an extent that he requires special school provisions. These children are usually classified as: (1) the gifted, (2) the mentally defective, (3) the physically handicapped, and (4) children with behavior and personality problems.

There is an absence of definite standards of superiority, and children have been called *gifted* whose I. Q.'s varied anywhere from 140 and above to as low as 110 (provided the latter had good work habits). Thus, children from the upper one to ten per cent of any age group are included. A number of traits characteristic of gifted children have been listed, but these are not possessed invariably by all of them. Generally, however, the gifted child is superior mentally, physically, socially, morally, and educationally. The following types of educational provisions for gifted children have been tried, but their relative effectiveness has not been adequately determined: (1) acceleration, (2) enrichment, and (3) special classes. Acceleration includes extra promotions for individuals, rapid advancement by groups, and sectioning. The major criticism of this method is that it advances children educationally too far beyond their physical and social development. The 1930 White House Conference (g.v.) endorses enrichment which includes more challenging types of experiences, supplementary reading, and creative work. The special classes provide enrichment, acceleration, or a combination of the two. These classes have been objected to on the ground that they are undemocratic and make the child snobbish. If each individual is to have educational opportunities commensurate with his abilities, this procedure is not undemocratic and, furthermore, competition with his equals stimulates the gifted child. (See ENRICHED CURRICULUM; GIFTED CHILD, EDUCATION OF; and SPECIAL CLASSES.)

Experts differ in their concepts of *mental deficiency* (g.v.). However, one authority estimates that from 4 to 5 per cent of children in an average elementary school need special attention because of mental subnormality. From the standpoint of the public school a distinction must be made between those who are educable and those who are merely train-

able; an I.Q. of 50 is generally used as the lower limit for admission to school. The vast majority of subnormal children are enrolled in the regular grades, where they are promoted by age rather than by achievement, thereby avoiding the effects of failure and discouragement. This practice is unsatisfactory, however, since the average curriculum is not adapted to the needs of the slow child. In some cities special classes are formed for these children, in which methods and materials are adjusted to the child's intellectual level and where the child is trained in habits of effective citizenship. Selection of children for such classes should be done by experts, and an inoffensive term should be used to describe them. Where special centers are organized, transportation must be provided, but special centers have the advantage of more efficient grading and equipment. The principal objection to special classes or centers is that subnormal children are often isolated and stigmatized. To avoid this, the present trend is to allow such children to participate with normal children in as many ways as possible.

Physically handicapped children are usually defined as those who, because of some physical defect, congenital or acquired, are unable to progress normally in the ordinary school. These include three groups: (1) the blind and partially seeing, (2) the deaf and hard-of-hearing, and (3) the crippled, cardiac, anemic, tuberculous, and malnourished. There may also be combinations of any of these groups. (See HANDICAPPED CHILDREN.)

A child is considered *blind* whose vision is so defective that tactual methods, such as the Braille system must be used in his education. (See TOUCH READING.) These children usually are educated either in state residential institutions or in special classes which are a part of the public school system. Advantages claimed for the latter plan are that blind children are not isolated socially, and do not become estranged from their homes. Institutions, however, may have more elaborate equipment and may be better for children from poor homes.

A *partially-seeing child* is one who can be educated by visual methods, but whose sight is so impaired as to necessitate some adaptation of conditions and materials, e. g., special lighting, books in large type, etc. These

children are usually placed in special sight saving classes where, in addition to the customary instruction, the development of habits of sight conservation is emphasized.

The *deaf child* is one whose hearing is so defective that it is impossible for him to receive instruction by auditory methods; he must learn to understand language visually through speech reading (oral method). Such children usually are educated in state residential institutions or in special public school classes, and the relative advantages and disadvantages of these two plans are approximately the same for deaf as for blind children.

The *hard-of-hearing* child may suffer from serious hearing loss, but can still be educated by auditory methods, with the help of amplifying devices (hearing aids), supplemented with speech reading. These children often are found in residential schools for the deaf, but the modern trend is to educate them in special public school classes where they can associate with normal children. (See DEAF, EDUCATION OF THE; SPEECH READING.)

The education of *crippled, cardiac, anemic, tuberculous, and malnourished children* is concerned more with the treatment of their physical condition than with academic problems. They are usually cared for in orthopedic schools or hospitals, convalescent homes or sanatoria wherein environmental conditions and class work are adjusted to their handicaps.

"*Problem children*" are those who have behavior or personality difficulties which lead to problems for themselves or for others, or, sometimes, for both themselves and for others. In some instances, the child's emotional difficulties find expression in a manner that creates no overt problem to concern others. Such a youngster, for example, may be fearful or unhappy and yet behave well enough in school to make an apparently good adjustment to the school situation. With other children, however, the youngster's emotional difficulties may lead to the kind of conduct that is in conflict with the social standards of the home, the school, and the community. Children's maladjustments may be caused by such personal inadequacies as mental retardation, physical handicaps or illness, warped personalities, or by frustrat-

ing environmental influences, such as homes of poverty and vice. In progressive cities these children are referred to Child Guidance Clinics where the child's personal history is studied and recommendations are made for his future development. These may include more adequate school placement; special methods, or more effective teaching procedures; change of teacher; re-educating members of the family; or removal from the home or community to a foster home or correctional institution. (See articles on such topics as: SPECIAL ABILITIES; GIFTED CHILD, EDUCATION OF; HANDICAPPED CHILDREN; etc.) F.K.M. and R.V.M.

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EXCURSION—See TRIP, SCHOOL.

EXHIBITIONISM. This term originated in psychoanalytic psychology, and in one sense is associated with the exhibition of certain parts of the body, especially the genitals. In its wider and more modern usage, however, it is employed to describe any attempt made by an individual to become the center of attention.

Instances of sexual exhibitionism may be found in the school room, on the school grounds, or in the toilets. It may include either exposure of the body or the drawing of obscene pictures. Strict but unobtrusive vigilance should be exercised to combat this situation. Such behavior is often symptomatic of ignorance, maladjustment associated with sex, or it may result from an attempt to over-compensate for feelings of inferiority—real or imagined. In such cases the motives must be determined before the problem can be solved, and the services of a clinician should be enlisted.

Adolescents are particularly prone to the latter, more general type of exhibitionism as evidenced by their desire to make an impression by wearing flashy clothes, talking loudly, telling questionable stories to shock others, bragging, etc. Although these tendencies are annoying to adults, they are, for the most part, evidences of immature but normal attempts to get social prestige, or serve as defense mechanisms to compensate for inferiority. Participation in dramatics or athletics has been suggested for those adolescents or adults who show this behavior to an excessive degree. On the other hand mere participation in dramatics or athletics may be ineffective if the exhibitionism is a symptom of more serious emotional maladjustment. (See DEFENSE MECHANISM; MENTAL HYGIENE.)

F.K.M.

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EXHIBITS, EDUCATIONAL. The educational exhibit offers the opportunity to bring a "slice of life" into the classroom. Many ready-made exhibits are available to schools willing to pay the cost of transportation. The exhibits which are available from museums, government organizations, commercial and semi-educational agencies are constructed with a view toward telling a story in a strikingly graphic manner. They usually consist of posters, charts, maps, specimens, models, pamphlets; and sometimes have accompanying slides, filmstrips, and motion pictures. They are loaned to the schools for limited periods of time. Most science supply houses sell exhibits of natural science materials and many schools utilize this material in building up school museums. A great deal of exhibit material may also be obtained from industrial concerns which give the material away or sell it at a small cost. Such so-called free material should be examined carefully for school use, for, although much of it is extremely valuable, the schools run the risk of using the classroom as a disseminator of advertising propaganda. Still another source of exhibits is the school environment. Specimens of leaves, stones, insects, and historical

remains may often be found easily. Another valuable source of material lies in the homes of students. This is especially true of articles used as exhibits in the social studies such as costumes, household articles, old newspapers and theater programs, and other articles reflecting ways of life in other times or in other parts of the world.

The school exhibit can be utilized as a form of concrete experience with the environment. Properly arranged exhibits offer opportunity to see, handle, smell, and hear. The student may even put a process into actual operation by the use of mechanical models. Student cooperation in properly organizing, labeling, constructing and displaying exhibits should be encouraged. Care must be taken to avoid the tendency to allow exhibits to become an end in themselves in which the students use an undue amount of time in construction, collection, and arrangement, perhaps losing sight of the educational ends which the exhibit is meant to serve.

W.H.H.

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EXISTENTIAL PSYCHOLOGY — See PSYCHOLOGY, SCHOOLS OF.

EXPERIENCE CURRICULUM. An *experience curriculum* is composed of a series of purposeful experiences growing out of pupil needs and moving through a democratic process of exploration, critical inquiry, deliberative action toward an ever more adequate understanding of and participation in the surrounding culture and group life. The basic experiences for study develop from pupil needs which arise out of their interaction with their environment. The process is deliberative, cooperative, social. The present is the time center in the study of the need. The past and the future are examined and weighed in so far as they are data upon

which to make a more thoughtful present course of action. The controlling outlook is always in terms of consequences of present action upon ability to reach more reasonable judgments tomorrow. The continuity in a series of experiences lies in the quality of the learnings which are picked up from one to carry on to another. This quality is contingent upon the process of selection and study of the need together with the logic of organization of the learnings, both of which are tested in the developing experience. The study of each need culminates in a satisfactory feeling tone for each person actively participating.

Since a difference between a subject curriculum or any one of its many variations and the experience curriculum lies in the quality of the experience, the learning of the most traditional subject matter is an experience for those pupils who pass or fail. Advocates of the experience curriculum hold that there is little necessity for the school to promote a low quality of experience of the subject type since more meaningful experiences with subject matter can be found in many other life associations. The school must help the pupil improve his relationships with his environment by rising above the common level of learning and action. Thus the experience curriculum implies a clean break with all forms of existing variations of the subject curriculum together with the basic ideas of human relationship, control, learning upon which they are founded. This, of course, does not mean a break with the culture, as it is impossible for anyone to be born or to live without a culture. The break is only with the current selection and organization of those parts of the culture which are the essentials for teaching in the schools.

An important consideration in the experience curriculum is the *total growth* of all learners rather than some selected aspect of total growth such as the development of abstract reasoning for one group of learners, which is found in subject curriculums. Furthermore, the relative values of the many interrelated aspects of total growth are re-examined. Emphasis is given to those which are near the center of behavior and become a part of the self, such as feelings and attitudes, beliefs and values, emotional stability, personal integration. Objective knowledge

and refined skills must operate through these more human and personal controls which have a lasting effect upon behavior. And the advocates of the experience curriculum want to recognize the *total life* of the school which includes the living of children, teachers, parents and others who affect in any way the quality of child development. Since the total living educates the total child, the school must help each child learn how to manage his living in order to keep it on as high a plane as possible. Thus the experience curriculum becomes synonymous with improved living although it is frequently confused with other types which attempt a more limited reorganization in *some one aspect* of total growth. All individuals, young and old, really learn what they live, and live what they learn. (See ACTIVITY PROGRAM; CURRICULUM; PROGRESSIVE EDUCATION.) L.T.H.

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EXPERIENCE METHOD IN READING—See READING, METHODS OF TEACHING.

EXPERIMENTAL EDUCATION. Experimental education as here discussed means the kind of education carried on in an experimental or laboratory school. Such a school is experimental, first, in that the school program is, by the way it is built, in continual process of experimental determination and, second, in that the program so built is itself an experiment in building the kind of mind and character needed for continual growth in and toward the life counted good.

To illustrate in current terms, suppose those running such a school conceive education as the conscious effort to assist and guide the young in growing up effectively into social life—to live well in it, to help carry it on, and to improve it. Suppose, further, that they accept democracy as the desirable way of life and, still further, believe that anyone—child or adult—will learn anything for living purposes only as he lives that thing in its life-setting, both in his heart and in his consistent outward conduct. As the teach-

ers in such a school seek to provide suitable living conditions and beyond that try to stimulate, elicit, and guide the pupil-living so that it will result in the kind of mind and character needed for continual growth in dynamic democratic living—as the teachers do so try, and in the degree they try, their effort will be characterized by continual experimentation. The educative results, socially considered, must be under continual criticism as to the degree in which they confirm the things experimentally done and the principles on which they were experimentally based. It is in these respects that such education is called experimental.

Experimental education of this kind, as history shows, has usually sprung from an interest in reform, typically social reform, though the concern may be more specifically for improving education itself viewed simply as a needed life process.

This is of course not the only type of experimentation to be found in educational work. Another fairly common type is quite similar to the experiments usual in psychological laboratories. In this type any detail of schoolwork may be studied with reference to the comparative merits of different ways of conducting it. Actual instances have been the effort to determine the effect of class size on learning results, to compare the respective merits of two methods of teaching reading, spelling, and subtraction, and even to determine the comparative effects on examination results of the presence or absence of arm rests on the seats used. In such experimentation the ordinary scientific precautions will properly be stressed: only one significant variable must be involved; a control group is necessary, etc. This type of experimentation is "scientific" in a sense not seemingly true of the other.

As we contrast these two types of experimental education other significances appear. For one thing, the scientific experimentation is, at least for thought and often in fact, quite separable from the essential school program. As regards immediate aim in view, the two—experiment and school program—need have little or nothing in common. The exact opposite of such a separability holds of the experimental education of this article; in it both the immediate aim and the content of the experiment are part of the essential content and aim of the schoolwork. As we

think further about the matter and note that the aim here is in each case to make life better and that the content is in each case the best living we can manage—as we note this constant emphasis on the quality of living, we see that philosophic questions enter naturally and even necessarily. It then becomes easy to say that as the one type of experimentation is “scientific,” the other is by contrast “philosophic.” The latter must consciously consider what makes life good and how the various constituent factors of the good life interact to effect that end.

If we think historically of an experimental school movement, Pestalozzi, the Swiss (1746-1827) (*q.v.*), should probably be named as its most prominent initiator. He was moved strongly by the humanitarian and democratic tendencies of his day and sought a type of school to foster these desired reforms in society. It seems also true that a profound love of children was a significant factor in his work. Herbart (*q.v.*) hardly belongs as a personal exponent of this particular movement, though various “Herbartians” who maintained experimental schools do. Froebel (*q.v.*), with Pestalozzi, definitely belongs in the movement. How these men have changed modern education and how their actual schools were powerful aids therefore are matters of history.

In America the training school at Oswego, New York (whence the “Oswego movement” of the 1860’s), the Quincy (Massachusetts) schools (1875 ff.) under Francis W. Parker, the John Dewey “Laboratory School of the University of Chicago” (1895-1903), Miss Patty S. Hill’s Kindergarten (1907 ff.), and the Lincoln School of Teachers College (1917 ff.) are outstanding instances of experimental schools that have significantly affected American educational practice.

Is there a continuing future probable for experimental education as here presented? The answer seems certainly yes. As long as civilization develops new problems and psychology new and more adequate insights, so long must education develop new insights both as to goals and as to procedures. Continued experimentation will remain a continuing need.

W.H.K.

EXPERIMENTATION IN EDUCATION—See EXPERIMENTAL EDUCATION; RESEARCH, EXPERIMENTAL.

EXPLORATORY STUDY. As applied to study, *exploratory* implies a general search or view of a topic or problem. This kind of study brings out the scope and boundary of an area of learning; it provides a rough idea of its implications; and it aims at awakening and discovering student interests and special inclinations. A class in civics, for example, may be approaching a new phase of its work—conservation. Instead of assigning a part, such as the conservation of forests, the instructor opens the whole problem from all angles. This exploratory work will get pupils to read, to observe, and to investigate; it will reveal that class members may discover such ramifications of the problem as the conservation of birds, flowers, and natural and human resources. At this point, conservation can be delimited to those aspects to be studied by the teacher and the class. Exploratory study enables the pupils to view the whole area of learning before going into details; it encourages a certain approach to problem-solving; and it fosters evaluation of the importance and weight of phases of study. It is, of course, more time consuming than the kind of teaching in which topical assignments are made and textbook study begins immediately.

In addition to the use of exploratory study within a single subject, there has been a trend toward the organization of entire courses that are exploratory in nature, so that the student has the opportunity of surveying a general field to find his interests and the teacher can discover aptitudes and exercise guidance. This exploratory function, among others, can be given to such courses as general science (See SCIENCE, TEACHING OF.) and general language (*q.v.*) in the junior and senior high schools, and to science survey and contemporary civilization courses at the college level.

F.A.B.

EXTENSION EDUCATION—See UNIVERSITY EXTENSION.

EXTENSIVE READING—See READING, EXTENSIVE.

EXTRACURRICULAR ACTIVITIES. The term extracurricular activities is a loose designation for those school activities outside the traditional school curriculum. The line between curricular and extracurricular activities has always been vague and many for-

EXTRACURRICULAR ACTIVITIES

mer extracurricular activities are now part of the regular program. The growing recognition of extracurricular activities is indicated by the fact that this field, neglected prior to 1920, now has more than sixty books as well as one specialized journal (*School Activities*, 1515 Lane Street, Topeka, Kansas).

A major object in furthering extracurricular activities is to stimulate and develop the habit of engaging in worthwhile, personality-building, leisure-time activities.

Extracurricular activities contribute much to the school program. They make use of the student's innate drives and urges by directing his free activities along channels that are educationally worthwhile. They help unify the school and foster the development of school spirit.

Basic Principles. (1) The student is a school citizen. Extracurricular activities should provide a setting in which he sees his duties as well as his privileges. (See CITIZENSHIP, EDUCATION FOR.)

(2) These activities should be included in the regular school schedule and the sponsor's efforts should be recognized as part of his program. This not only makes for good student and teacher attitude and gives added importance to the program but also helps assure a correlative demand that the time and effort be well spent.

(3) Activities should be correlated closely with the curricular work. Thus athletics may tie in with health education, and publications, with English. (See ATHLETICS and PUBLICATIONS, SCHOOL.)

(4) Wise participation should be encouraged. All students should be encouraged to participate but no student allowed to monopolize the responsible positions.

The most common means of limiting participation are: (a) simple limitation, with no student permitted to engage in more than a given number of activities; (b) a point system, where activities are evaluated according to the amount of time required and no student may carry more than a certain number of points; (c) major and minor activities, with the student limited to a certain number of majors and minors; and (d) a group system, where all activities are classified into such groups as sports, academic, service, etc., and the student is limited to one activity in each group.

Student participation is encouraged by (a) granting awards, as letters and pins; (b) allowing credit toward graduation; (c) appointing to a position of honor, as marshal; and (d) conducting social functions such as trips. Although there are some arguments in favor of compulsory participation, this method is not popular. The only valid requirement for participation should be a vital interest in the activity. Even the minimum ability requirement usually set by such organizations as dramatic and athletic groups may be questioned, since one of the primary aims of these organizations is the discovery and development of these abilities.

(5) Extracurricular programs should be developed gradually and should meet the school's special needs. Though any school may gain much by examining the program followed by another school, little can be said for the unimaginative adoption of an entire program that may not fit the local needs. Further, no good program is permanent; it must be adjusted constantly to meet changing conditions.

(6) Competent administration and supervision are essential. In the smaller schools, the principal is normally the person who supervises these activities, but in medium or larger sized schools there is usually an assistant principal, a dean of students, or a director of activities. A faculty committee often works with such an administrator or takes the place of the special officer.

Developing and maintaining the faculty cooperation necessary for a well-organized program are major problems. Almost every school has some teachers who have developed their activities to a high degree of success while others believe these activities to be a waste of time; some teachers are willing but untrained and incompetent, others are trained and competent but unwilling.

The individual faculty sponsor carries a major responsibility. The students of one high school described the "ideal sponsor" as having the habit of allowing the students to assume most of the responsibility, tact in directing the choice of programs without letting the students feel he is interfering, the ability to make friends with students on an informal basis outside of class, a sympathetic understanding, a knowledge of the subject on which his activity is based, a strong

and pleasing personality, and a sense of humor.

(7) The financial organization is often inefficient, possibly as a result of the marginal position that these activities have formerly held. In the decentralized form of financial organization each activity raises and disburses its own funds. This procedure is inferior to the centralized organization where all funds are collected and disbursed by a central office, which assures adequate financial support for all worthy activities regardless of their income and encourages the employment of auditing, bonding, and other businesslike procedures.

The most logical source of income for extracurricular activities is the grant from the board of education. School boards have generally provided indirect support by purchasing equipment and supplies, paying for the teacher's time, etc., and they are providing increasing support not only to assure equitable financing of all activities, but also to make certain that the stress is placed on educating the participants and not on collecting large gate receipts. Where such support is unavailable, activity tickets are often sold, sometimes on a partial payment plan. The student pays a fixed sum which admits him to all events, entitles him to the newspaper, etc. This procedure assures fairly accurate budgeting and renders unnecessary the various slipshod money raising schemes so often employed, with attendant uncertain financial return and dubious educational implications.

(8) Extracurricular activities should be evaluated continuously for their immediate and ultimate effect, employing the interested efforts of all who are engaged in these activities, and using all available valid techniques. The immediate effects of participation are important, but not nearly so important as the ultimate effects. Evaluating the ultimate effects is admittedly difficult, but it must be emphasized. The evaluation may be based on the extent of participation and the nature or quality of participation. One can assume that the greater the extent of volunteer participation, the more attractive and successful is the program. Yet a student may participate to so small an extent that he may be little better off than if he had not participated at all.

Evaluations of quality are difficult, but judgments of apparent interest, industry, and

achievement give some indication of the quality of participation. Most of the evaluation of extracurricular activities will be necessarily subjective, taking the form of expression of likes and dislikes, rating cards, etc. These judgments may be obtained from participants, former participants, and other competent critics.

Controlled experimentation is rarely found in extracurricular affairs. Experimentation in this field usually represents a change from previously used materials and techniques. Rare is the serious attempt to discover the reasons for the previous failure and even rarer is the published account of the failure, even though the analysis of failure may be valuable to those working in the field.

H.C.M.

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EXTRAMURAL COURSES. Courses given off the campus. They may be offered either by correspondence or by classes at the places of instruction. They are also called extension courses. In 1891 there was organized in Chicago a society for the extension of university teaching, to be directed by public library agencies. Today most of these courses are directed by the individual colleges. Massachusetts, with a separate organization, is an exception.

The major advantage of extramural courses is that they enable the sponsor institution to extend its influence and facilities to accommodate students who cannot attend courses conducted on the campus. A state university, for example, may conduct courses at centers located in various parts of the state and thus enable teachers to continue their own studies

even though the lack of time and the pressure of the other duties do not allow the teachers to travel to the university campus during the school year. Extramural courses also make it possible for an institution to take advantage of the wealth of resources in the community. A course in art appreciation, for example, may be conducted more effectively at a museum than at the college, and the course in astronomy may be more meaningful if it is given at a planetarium. Those who tend to belittle the value of extramural courses refer to the temptation to lower the standards when the work is done at centers far removed in space, and possibly in atmosphere, from the sponsor institution. Criticism has been leveled, too, at the inadequate library and laboratory facilities usually available for students of extramural courses and point to such inadequacy as both a symptom and a cause of lowered standards.

Most institutions count some extra-mural work (limited in amount) toward the degrees. Correspondence work is usually accepted in less proportion than other types.

R.A.K.

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EXTROVERSION — See **INTROVERSION**.

EYE MOVEMENTS IN READING—
See **READING, EYE MOVEMENTS IN**.

EYE-VOICE SPAN—See **READING, EYE MOVEMENTS IN**.

EYES, DEFECTS OF—See **VISION**.

F

FACTORY SCHOOL — See COMPANY SCHOOL.

FACULTY ADVISER—See EXTRACURRICULAR ACTIVITIES.

FACULTY, COLLEGE — See COLLEGE SCHOOL FACULTY.

FACULTY MEETING—See TEACHERS' MEETING.

FACULTY SPONSOR—See EXTRACURRICULAR ACTIVITIES.

FAILURE, PUPIL—See PROMOTION.

FAILURE, TEACHER — See TEACHER FAILURE.

FAMILY LIFE, EDUCATION FOR. In the broad sense *education for family life* includes any instruction or guidance which is designed to help members of families participate happily and usefully in family life. Education directed specifically to parents as parents, or to young people in their capacity as future parents, is, however, to some extent distinguishable from the more general "education for family life," which deals with all relationships within the family, and with the functions and goals of the family as a whole. (See PARENTAL EDUCATION and PRE-PARENTAL EDUCATION.)

The recognition that family life is a subject in which education can profitably be undertaken has been brought about by several factors: (1) the impact of socio-economic changes upon the family as an institution which have created a need on the part of family members for guidance in adjusting to these changes, and for help in strengthening those important functions of the family which remain unchanged; (2) the attention focused on family relationships and adjustments by the rising interest in mental hygiene on the part of both laymen and specialists; (3) the increasing desire on the part of educators to

physical needs of their students. Such crises meet the social as well as the intellectual and as economic depression and war have also concentrated attention on the status of the family.

Courses on family life in colleges and high schools have multiplied rapidly since 1920, though they are not yet offered by all institutions. College courses taught by one specialist or a group of specialists now usually include sociological material on the family and marriage as institutions and on the relationships between the family and the community; psychological material on personality development, age and sex differences, family relationships, and family goals; and some information on techniques of home management, which may be demonstrated in actual homes set up for teaching purposes. An attempt is being made in some colleges to meet the needs of men as well as women, mixed groups being admitted to the courses in several institutions. Individual counselling by psychiatrists or deans often supplements formal instruction and informal discussion groups.

Where special high school courses on family life exist, they tend to resemble those in the colleges, except that the material is simpler and more concrete, and the emphasis less on preparation for future family life than on the adjustment, often difficult during adolescence, to present family situations. Some high schools which do not offer special courses attempt to treat problems of family life in courses in home economics, biology, or psychology. Education for family life is also offered to young people of school and college age by various non-academic organizations, such as the 4-H clubs, and the YMCA and YWCA. Below the junior high-school level, education for family life is necessarily more informal and indirect; it has not played a large part in elementary education generally, although its possibilities are being

realized increasingly in the primary grades through activity programs and dramatic play.

For adults who have established families of their own, education for family life centers largely about parental education. Instruction dealing with other aspects of family life is offered, however, in some university graduate and extension courses, by adult education programs serving rural communities, by social case workers of private and public welfare agencies dealing chiefly with underprivileged groups, and by a wide variety of books and periodical articles of all levels of difficulty. Of increasing importance, also, is the work of special services like the Family Guidance and Consultation Service of the Child Study Association in New York City, or the Institute of Family Relations in Los Angeles, which provide consultation on marriage and family problems for persons of all ages. (See also PRE-PARENTAL EDUCATION, PARENTAL EDUCATION.) B.B.L.

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FAR-SIGHTEDNESS—See VISION.

FASCIST EDUCATION — See ITALY, EDUCATION IN.

FATIGUE. While *fatigue* may be defined as decreased ability in performance resulting from prolonged work, certain factors in the situation may cause fatigue to set in relatively early. The "feeling of fatigue" experienced by a person is not directly proportional to the amount of work he has done. Neither is the decrease in performance directly proportional to the length of time that has been devoted to work. Physiological studies of muscular fatigue indicate that the consumption of

energy-producing compounds and the accumulation of waste products are relieved by periods of rest and sleep. Factory studies have shown that increased output can be brought about not only by shortening the work day and interspersing rest-periods, but also by changing the attitude towards the job and the relation of workers to each other and to the management. Furthermore, laboratory experiments have shown that when the subject refuses to go on with a task because of what he describes as "such fatigue that it is impossible to continue," a very slight variation of the task, with the same muscles involved, (such as the writing of dots in pairs rather than singly) will cause the subject to resume the work and continue for some time with no more rest than the time taken for the momentary refusal.

The work situation in school and elsewhere may be complicated by emotional tension caused by such a requirement as sitting still or by anxiety about success. The school pupil is affected adversely also by monotony and boredom, which are difficult for him and his teacher to distinguish from fatigue. On the other hand, under the stimulus of vivid interests, children and older persons may continue working effectively for relatively long periods on one project, or on a series of varied activities.

Fatigue appears to be relative to the whole learning situation involving many factors and to be so related to personal attitudes and interests that school practice must be established as far as possible on the basis of the total development of each individual. To say that fatigue affects attention, memory, inhibitions, and reaction time, is to recognize the need for rest and relaxation as well as for stimulation and variation.

W.F.B. and B.B.F.

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FEAR. Basically, fear is the reaction of an individual to a situation for which he has no ready and adequate response. Recent studies have shown that the definite behavior pattern which we know as fear probably is

not present at birth. However, the newborn infant does show startle and withdrawal responses (often accompanied by crying) to strong, sudden, or unexpected stimuli, such as loud sounds, loss of support, etc. Very early in life this generalized reaction, with the combined effects of learning and maturation, becomes crystalized into the behavior we call fear.

Fears of specific objects or situations are not innate but are the result of conditioning and learning. Thus, if a sudden loud noise accompanies the presentation of a toy to an infant, the fear evoked by the sound becomes associated with the toy, and the child will show fear reactions to it when it is presented without the noise. This conditioning process operates both in childhood and adulthood; many specific fears can thus be accounted for. Contrary to popular opinion, a child does not outgrow fears, but their number and variety increase with age. It has been shown, too, that parental attitudes are a factor in the development of fear, children tending to be more fearful if their parents are fearful.

Worry may be considered as a more generalized type of fear which affects a larger segment of experience. It may result from the spread of unsolved specific fears, or may represent a general feeling of insecurity. For example, a frequent source of worry among children is parental discord, creating constant tension in the home, and undermining the feeling of security so essential to a child's emotional health. Unsatisfactory school adjustment, also, is a prolific source of worry to children, caused by an overemphasis on artificial standards of success, such as marks and grades, and the constant threat of failure. There is a positive relationship, too, between physical condition and worry, those children and adults who are in poor health showing many more fears and worries.

Fear responses once served a valuable purpose in the preservation of the individual. The physiological changes accompanying the so-called "emergency emotions" of fear and anger have the general effect of increasing bodily energy, so that one may cope better with the dangerous situation either through flight or combat. Intense fear, however, may have an inhibiting or blocking effect which prevents the person from making any form of response. Since, in our civilized society,

the need for physical protection has diminished greatly, the inhibiting effects of fear seem to be somewhat more frequent, and are usually referred to as emotional blocking. Illustrations of such blocking are to be seen in the child who is so afraid that he cannot recite in school. Stammering is perhaps the best known symptom of emotional blocking, a large proportion of it being attributable to fear. Fear of the teacher or of failure may also be so acute as to lead the child to adopt a listless and seemingly indifferent attitude, which scolding or punishment serve only to aggravate.

The success of the methods used in dealing with fears depends upon the type of situation involved, the child, and the adult employing the methods. Diverting the child's attention from the object or event feared has been shown to be of only temporary value. Neither are fears eliminated by forcing the child to meet a feared situation. Other methods of doubtful value are: showing by personal example that there is nothing to fear, ridiculing the child, or trying to talk him out of his fear. A fear may be dissipated by having the child join a group who are unafraid, but there is a possibility, also, of the other children imitating his fear. The development of new skills may sometimes overcome a fear, e.g., giving a boy boxing lessons so that he can defend himself more adequately. Probably the most effective method, however, is to associate the feared object or situation with pleasantness and success. Thus, fear of animals can be overcome by associating them with some pleasurable experience. As a means of securing obedience, fear is undesirable because it persists beyond the occasion for which it was used. Not all fears can be prevented, nor would this be desirable, as some are essential for the child's protection. Nevertheless, understanding and forethought by parents and teachers can prevent many unnecessary fears which interfere seriously with a child's efficiency and happiness. (See PHOBIA.) R.V.M.

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FEDERAL ADVISORY BOARD FOR VOCATIONAL EDUCATION—See VOCATIONAL DIVISION OF THE UNITED STATES OFFICE OF EDUCATION.

FEDERAL AID. Federal aid to education has been a characteristic national policy from the earliest days of our national history. Without any attempt at this point to enter into the pros and cons of federal "control" as against federal "aid", some benefit may be derived from a factual legal discussion of the various forms of federal grants-in-aid to states for educational purposes. A grant-in-aid is a payment by the federal government to a state government to defray all or part of the cost of a governmental service administered by the state, generally but not necessarily subject to federal controls and conditions enforceable by withholding of future grant payments.

Even before the birth of the United States of America, while the states were still in a confederation, the Ordinance of 1785 directed that section number 16 of every township in the western territory should be forever reserved for the support of schools. Two years later the famous Northwest Ordinance of 1787 contained a declaration of policy in the following terms:

Religion, morality, and knowledge, being necessary to good government and happiness of mankind, schools and the means of education shall forever be encouraged.

When property in the Northwest territory was sold in 1787, lot 16 was set aside for the support of schools and not more than two entire townships were given for the purpose of a university. This policy was followed in practically all subsequent Congressional acts admitting states to the Union, starting as early as 1802 in the act admitting Ohio to statehood.

Agricultural College Acts — Land-Grant Colleges. The modern form of federal grant-in-aid to states for education dates from the Morrill Act of 1862 (Agricultural College Act of 1862, 12 STAT. 502, 7 U.S.C. 301-8). By this statute, Congress gave large portions of public land to the various states for the support of a college that would provide a "liberal and practical education of the industrial classes". The land was allocated

in proportion to the number of senators or representatives. Originally these grants were made as endowments, the income thereof to be used for the operation of a college of "agricultural and mechanic arts".

This act was a novel departure in at least two regards from the previous forms of federal aid to education. First, it provided assistance only for specialized forms of education, and secondly, it provided for differentiation among states as to need, however roughly ascertained.

The Second Morrill Act (Agricultural College Act of 1890, 26 STAT. 417, U.S.C. 322-8) was intended "for the more complete endowment and maintenance of colleges for the benefit of agriculture and the mechanic arts" established under the 1862 Act, through providing \$25,000 to each state that had established such an institution. The Nelson Amendment of 1907 increased these funds.

The last important Congressional action for land-grant colleges came in the Bankhead-Jones Act of 1935 (49 STAT. 436), which increased the annual appropriations to these colleges.

Vocational Education. Perhaps the most important general extension of federal grants-in-aid for education came with the Smith-Lever Act of 1914 (38 STAT. 372, 7 U.S.C. 341-8). Here Congress appropriated funds to be distributed among the states to foster agricultural extension instruction, and to disseminate information on subjects relating to agriculture and home economics among people not attending land-grant colleges, through coordination of the extension work of the land-grant colleges set up under the Morrill Acts and the United States Department of Agriculture. For the first time in federal grant-in-aid legislation, the Smith-Lever Act introduced the requirement of "matching" federal money with state money. This act also gave to the Federal government a greater degree of control than was found in earlier grants-in-aid.

In 1917, Congress passed the Smith-Hughes Act (39 STAT. 929, 20 U.S.C. 11-29) providing federal funds for distribution among the states to promote vocational education. These continuing annual appropriations were designed for the promotion of agriculture, trades, and industry, with a limited expenditure for home economics. The money was to

be used specifically for the training and salaries (to the extent of half their salary) of teachers, supervisors, and directors in schools lower than the college level. To administer the act there was set up the Federal Board for Vocational Education, since subsumed under the Federal Security Agency.

By 1928 public pressure for the extension of the work initiated under the Smith-Lever Act resulted in Congressional passage of the Capper-Ketcham Act (45 STAT. 711, 7 U.S.C. 343a), whereby additional funds were appropriated for co-operative extension work along the lines of the Smith-Lever Act, with the result that work in home economics and with youth in this field was greatly extended.

In 1929, Congress passed the George-Reed Act (45 STAT. 1151, 20 U.S.C. 15a-15c) providing supplemental appropriations to the Smith-Hughes Act, to be divided equally between vocational education in agriculture and home economics, excluding the trades and industry. By 1934, owing to the discontinuance of George-Reed funds, Congress adopted the George-Ellzey Act (48 STAT. 792, 20 U.S.C. 15d), appropriating a sum of \$3,000,000 for each of the next three years, to be divided equally among vocational education in agriculture, in trades and industries, and in home economics.

By 1936, with the discontinuance of the George-Ellzey Act fund, Congress adopted the George-Deen Act (49 STAT. 1488, 20 U.S.C. 15h-15p), which increased the appropriations available for the promotion of vocational education, and also introduced a new field for federal support, the distributive occupations. Funds were also provided for the training of teachers in agriculture, home economics, and trade and industrial subjects.

Concurrently with the two main trends of legislation providing grants-in-aid for education, there have been other forms of federal educational assistance to states. For example, one typical form appears in acts admitting New Mexico and Arizona to statehood in 1912, whereby a proportion of the income from national forests in those states was to be paid to the state for its common school fund.

Another form of educational grant-in-aid appears in the statute appropriating grant-in-aid funds to provide nautical instruction in educational institutions maintaining a marine

school or a nautical branch (36 STAT. 1353, 55 STAT. 607, 34 U.S.C. 1121-1130).

In 1933, the New Deal created still another type of educational grant to the states when it adopted the Civilian Conservation Corps Act (48 STAT. 22, 16 U.S.C. 585, as supplemented by 50 STAT. 319, 16 U.S.C. 584), which established the Civilian Conservation Corps (*q.v.*) and authorized cooperative agreements with states.

The latest form in which educational grants-in-aid have appeared is in the recent defense and war-time measures appropriating money for the training of defense workers and war production workers (First Supplemental Appropriation Act of Oct. 8, 1940, 54 STAT. 1033-5; National Defense Act of 1941; Labor-Federal Security Appropriation Acts of 1942 and 1943). In these latest types of federal grants, the philosophy established by the Morrill Act is carried on so that federal grants still are intended to promote a specific kind of educational activity.

Amount of Federal Aid. Federal funds for education are allotted to the states under three major categories: the regularly recurring appropriations for education, emergency allotments, and other funds used for education in certain states. During the year ending June 30, 1940, federal funds amounting to \$153,572,185 were distributed to the states (or to individual schools in them) for educational purposes. In addition, approximately \$3,500,000 was distributed from special revenue—such as national forest receipts—some or all of the funds being used for education in the states. The regularly recurring appropriations for that year (1939-40) amounted to \$55,117,370, or 34 per cent of the total; the remainder constituted appropriations for emergency purposes. The non-emergency funds were granted for five purposes: the increase of endowment and support of the land-grant institutions, agricultural experiment station work, agricultural extension service, vocational education, and vocational rehabilitation. The emergency funds were granted for three purposes: assistance for needy students, educational program of the Works Progress Administration, and school building construction. Table 1 shows the amount of emergency and non-emergency federal aid distributed in 1939-40 for each of the purposes enumerated.⁶

FEDERAL COMMUNICATIONS COMMISSION — FELLOWSHIP

Table 1
Amount of Federal Aid for Various Purposes

Purpose	Amount
Non-emergency Funds:	
Land-Grant Institutions	\$ 5,030,000
Agricultural Experiment Station	
Work	7,448,750
Agricultural Extension Service	18,584,642
Vocational Education	21,775,977
Vocational Rehabilitation	2,278,000
Emergency Funds:	
Assistance for Needy Students	28,088,592
Education Program of the W.P.A. .	28,243,054
School Building Construction	42,123,170
Total	\$153,572,185

Distribution of Federal Funds. Regular recurring non-emergency appropriations in 1939-40 for the five purposes listed above were allocated to the states as follows: \$10,696,332 in the form of flat grants, \$43,937,560 on the basis of population, and \$483,477 for special purposes. The emergency funds are allocated where needed in the form of flat grants to institutions, individuals, and states.

Approximately 47 per cent of all regular funds in 1939-40 was allocated through and expended under the Administration of the Division of Experiment Stations and Agricultural Extension Service of the United States Department of Agriculture. The remaining 53 per cent was administered through the Office of Education of the Federal Security Agency.⁶

Federal Aid and Control. Before the time of the Civil War, the policy of the Federal government was one of granting aid to the states without administering federal control. Educational policies were assumed to be a matter for the various states to determine. After the Civil War, however, the policy was changed by the addition of certain control features. Perhaps the greatest amount of federal control is exhibited in the administration of funds distributed for vocational education on the secondary school level. However, recent studies showing the need for increased federal aid for education have exhibited a trend on the part of the Federal government toward the return of its former policy of granting aid without control. (See also STATE AID; SUPPORT OF EDUCATION.)

H.N.R. and W.C.R.

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FEDERAL COMMUNICATIONS COMMISSION—See RADIO EDUCATION, ADVISORY COMMITTEES ON.

FEEBLE-MINDEDNESS—See MENTAL DEFICIENCY.

FELLOWSHIP. A fellowship is usually an outright grant of money, given a person to allow him to do graduate or postgraduate work in America or abroad either at an institution designated in the grant or at an institution of the recipient's choice. Appointments to fellowships are made on the basis of the intellectual distinction attained or promised by the candidates, and on the basis of other personal qualifications. Considerable weight may be given to individual financial need when other factors seem equal. The award is usually granted for a minimum of one year.

Fellowships are of long standing in the universities of England, where the fellows have a responsibility in the administration of the institutions they attend. The first fellowship was given in the United States in 1865 at Yale University. Today numerous private foundations and leading industrial organizations also grant fellowships. (See also INTERNATIONAL SCHOLARSHIPS AND FELLOWSHIPS.)

R.A.K.

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FIELD TRIP—See TRIP, SCHOOL.

FILIAL REGRESSION, LAW OF. The tendency for the average abilities and traits of siblings to be closer to the mean of the general population to which they belong than are the average abilities and traits of their parents. For example, the mean height of five siblings of very tall parents will tend to be less than that of the parents, and the mean height of children of two rather short parents will tend to be greater than that of the parents. This is related to the fact of imperfect correlation between parent and child in any trait. In spite of the "law," the human race is probably not becoming less variable, as one might at first be inclined to believe.

J.P.G.

FILM-STRIPS—See AUDIO-VISUAL AIDS.

FINANCE, SCHOOL. *School finance* is one subdivision of *school administration* (*q.v.*). It is a broad field and enters into every phase of school administration. In many instances it is difficult to distinguish between a subject which might be labeled school finance and one which should be treated under school administration. School finance properly refers to the problems and practices related to the ways in which schools receive and expend the money designated for education and its functions.

Accounting. Since public education costs more than two billion dollars annually, it is obvious that adequate accounting systems are essential to its fiscal administration. In general, financial accounting has three purposes: It helps (a) to formulate policies for the administration of schools, (b) to determine the efficiency of the school system, and (c) to audit the school funds, thereby guaranteeing the honesty of the administration. However, public education has neglected the first two of these purposes and has placed major emphasis on the third.

Every state in the Union requires a periodic audit of school funds and most states require an audit at least every other year. The United States Office of Education and the National Education Association have been working since 1912 toward the general acceptance of a proposed uniform accounting system, which a number of states have already adopted. At the present time, however,

the public schools in general do not use uniform methods and terminology. Most school systems make provision for five ledger accounts: (1) Balance Sheet Accounts, (2) Appropriation Accounts, (3) Revenue Accounts, (4) Operating Accounts, (5) Fixed Charges.

The two major groups making audits are: (1) administrative, usually regular employees of the board of education; and (2) independent, the outside examiners of accounts.

In addition to the audit of bills before they are paid, and the occasional "surprise audit," the stated times for examinations of accounts are monthly, quarterly, semiannually, and annually.

Classified on the basis of the amount of detail and interpolation, the audit reports are: (1) condensed, as a terse recapitulation of the major receipts and expenditures; (2) detailed, as a meticulous record of all fiscal transactions; and (3) explained, as an interesting, narrative, pictorial report to the people on the stewardship of school funds.

There is a great need for improvement in the accounting systems of public schools. After satisfying the need for assuring honest administration of the funds, the next most important function of school accounting is to make possible accurate studies of unit costs, and in order to do this one must have comparable data. If the accounting systems of the schools concerned are not uniform, financial data are not comparable. This difficulty arises in large measure from the failure of school administrators to define their terminology and to agree upon uniform accounting methods.

The usual procedure for keeping school accounts is to have the clerk of the local district or the secretary of the board of education prepare and keep the records and reports for each school district. These records are then compiled by the county superintendent of schools who forwards them to the State Department of Education. The State Department audits the accounts and corrects any inaccuracies which it discovers.

One of the most neglected phases of school accounting is the so-called "internal school accounting." Most public school systems today conduct certain extracurricular activities (*q.v.*) which involve the raising and spending of funds. Although many schools handle hundreds of thousands of dollars annually,

FINANCE, SCHOOL

there is no adequate accounting system in operation in many school systems. Fortunately, however, there is a trend toward the adoption of adequate internal accounting machinery. In many of the more progressive schools a system is being set up which makes it possible for the students to cooperate in keeping the books of the school, thereby learning something of accounting and also participating in extracurricular activities. The plan generally recognized as superior is to have a bonded central treasurer responsible for all institutional funds. After adopting a budget, each club, class, or activity which raises and spends money within the school turns over to the central treasurer all funds received. An account is carried for each such group. All expenditures are paid by the central treasurer upon receipt of a properly signed voucher from the group's officers, and all payments are by check. Thus, although each group within a school may elect officers, keep books, and regulate its own activities, the group's funds are administered and safeguarded by a central treasurer and supervised by school officials.

Apportionment of school funds. Most of the states in the Union distribute funds to local school administrative units. In some states the counties also allocate money to local school districts. The Federal government, too, distributes funds for schools to the several states and, for a few particular purposes, to counties or other administrative units within states. This distribution or apportionment of funds constitutes an important phase of state school finance.

Historically, the apportionment of school funds by the Federal government to the states may be traced back to gifts of school land by the Federal government to the states for the purpose of establishing permanent school funds. To encourage public education, the Federal government, beginning in 1802, instituted a policy of granting to each state certain areas of land that could be sold; the proceeds went into a fund, the interest of which was to be distributed to the school districts of the state. Having begun this policy, the government increased the amounts of land and money apportioned to the states, until at the present time there are annual apportionments for particular purposes running into millions of dollars. (See **FEDERAL AID.**)

State apportionment of funds to local school districts became necessary when the state permanent funds were created. The laws which provide for state apportionment of school funds are complicated and widely different. In general, however, the states may be classified with respect to their apportionment laws as follows:

(1) States which maintain at state expense the minimum term in all local school districts, and then permit local districts to supplement the state minimum program. North Carolina is an example of this plan.

(2) States which, by means of an equalization fund and other basic state aids, equalize an educational program. The cost of this program has been determined in terms of some standard unit in all the districts of the state. The amount of support received by the district depends upon the relative wealth of the administrative unit. New York is an example of this type of apportionment plan.

(3) States which have a state equalization fund and equalize basic county aids so that educational opportunities throughout the state become approximately equal. South Carolina is an example of this plan.

(4) States in which all aid is apportioned on some standard measure with no attempt at equalization of the tax burdens, the amount of money distributed being sufficiently large to guarantee a reasonable minimum program. California is an example of this plan.

(5) States which apportion aid on one or more bases with no attempts at equalization.

Many different units are used as bases for apportionment, for example, census child, unit of average daily attendance, enrollment, number of teachers, number of classroom units, and weighted pupil units. (See **STATE AID.**)

Bonds. A school bond is an instrument issued by a corporate school administrative unit as an evidence of indebtedness. In general, bonds may be issued by "corporate" bodies. School districts are included in this definition, since a school district is classified legally as a "quasi-municipal corporation." A bond takes the form of a printed statement in which the issuer promises to pay within a stated time to the person legally owning the bond a stipulated sum of money at a fixed rate of interest, the interest to be paid periodically. A school bond is negotiable in char-

acter, transferable by endorsement or delivery and payable at some future date.

The issuance of bonds by school districts is controlled under the constitution and statutes of the states, and there is little uniformity in practice among the forty-eight states. The amount of indebtedness of this type which may be incurred by the school district is usually limited by law. In many of the states the limit is imposed in terms of the assessed or taxable valuation of the district. A typical percentage of assessed valuation is five per cent. The range of limit is from about two per cent to about fifteen per cent.

There may be said to be three principal types of bond issue—*straight term bonds*, *sinking fund bonds*, and *serial bonds*. The straight term bond issue is one which is floated for a period of years, the entire amount of the principal being paid at the end of the term. The sinking fund bond issue is a straight term bond, for which a sinking fund is created that will yield a sufficient amount of money to retire the bond when it becomes due. The serial bond issue is one which is retired by making payments at regular intervals; usually one or more of the individual bonds comes due each year throughout the entire term of the issue. The serial bond issue is generally regarded to be the best type of school bond issue and is the one most frequently used.

Bonds are issued in two principal forms, *registered bonds* and *coupon bonds*. Registered bonds are those in which the owners' names are registered with the issuer so that interest checks can be mailed. Coupon bonds are those to which are attached coupons providing for the payment of interest which may be clipped and redeemed at specified intervals.

In most states it is necessary for school officials to obtain by popular vote the permission of the electorate to issue bonds. In some states bond issues must be ratified by the state legislature or some other governmental agency. There is considerable variation in the procedures necessary to legalize a bond issue. In general, public school systems do not bond themselves for their operation; they more frequently use receipts from bond issues for construction of school build-

ings and purchase of school sites and equipment.

By the *pay-as-you-go plan*, capital outlay expenditures, as for school sites and buildings, are financed through the current school budget rather than through borrowing the money by bonding the district.

The controversy between the proponents of the bonding and of the pay-as-you-go plan is a perpetual one. The arguments in favor of the pay-as-you-go plan rest on the considerations that bonding may lead to extravagance in building, since people buy more critically when they are paying cash rather than paying in installments; and that bonding is more expensive ultimately because the interest as well as the principal payments must be made. In favor of the practice of paying for capital outlay expenditures by bonds is the fact that most small school districts could not obtain ready cash for a new building which is needed once in a generation. The pay-as-you-go plan actually may cost the taxpayer more if he has to borrow money at high interest rates in order to pay immediately his share of the building costs. The average annual rate of interest charged on school bonds sold in the month of November, 1942, was 2.16 per cent, which is much less than the taxpayer would have to pay if he were forced to borrow as an individual.

In the final analysis it is difficult to determine which method is better for a typical community, or for each taxpayer in that community. The nature of the times affects the problem. It is generally advisable to fight inflation by paying off debts, and it is sound sense to do as much pay-as-you-go business as possible in prosperous times, reserving borrowing power for periods of depression.

Selling bonds enables a district to spend large amounts of money at one time and to provide for the equitable distribution over a number of years of the costs involved to the taxpayers, so that persons benefiting from the expenditures for capital outlays may share equitably during their lifetime the costs involved.

Bonds are issued for a definite length of time, and the laws of the several states usually fix maximum periods for which bonds may be issued. The most frequent length of maximum period is twenty years, although some states permit bonds to run for as long

as fifty years. The average period of bond maturity is between twenty and thirty years.

Bonds are marketed by school districts in a number of ways, the two most commonly used being (a) selling them to the state or (b) selling them to private investment companies. Occasionally bonds are sold "over the counter," which means that they are sold at a fixed price to any person who cares to buy them directly from the school district. Probably the most satisfactory method for marketing school bonds is to sell them through investment brokers, who buy and sell securities of all kinds and bid for the purchase of the bonds, thereby assuring school districts a fair market price. Most states prohibit the sale of school bonds for less than their par value, although some permit it within certain prescribed limits.

Budget. A school or educational budget is a financial plan for a definite period based on careful estimates of receipts and expenditures for the operation of a school or school system. A budget is regarded by most school systems as a kind of contract entered into between the taxpayers and the public school officials.

A typical school budget is divided into three principal parts: (1) the *educational program*, a statement setting forth the general educational purposes and policies proposed in connection with the receiving and spending plan; (2) the *spending plan*, a detailed enumeration of the specific amounts of money to be expended for the several purposes proposed; and (3) the *financing plan*, detailing the proposed receipts as sources of revenue.

The interrelation of budgeting and accounting is evidenced in that the budget is prepared not for the school year but for the fiscal year, which is the legal division of the twelve months for the purpose of financial accounting. The most common date for the beginning of the fiscal year is July 1. As to length of time covered by the forecasts, the budgets are usually classified as (1) annual, (2) biennial, and (3) long-term. The typical public school budget is the annual one, covering the fiscal year. The budgets for some state institutions cover a two-year period. An increasing number of educational institutions are practicing long-term budgeting, by which the annual budget becomes part of a plan projected several years in advance. Long-

term budgeting is an attempt to substitute intelligent forecasts in place of the opportunism of a laissez-faire philosophy.

The typical annual budget is prepared by school officials for consideration by the Board of Education and other controlling agencies a few months in advance of the beginning of a fiscal year. When it is finally adopted, it serves as a basis for the tax levies to be imposed by taxing agencies for the support of public education in the particular district concerned. Authorities agree that preparation of the budget should be a cooperative enterprise by the superintendents of schools and his staff. In preparing the budget the school officials should keep in mind the long-time objectives of the school system, yet should be sure to make the document inclusive and detailed. It should be well proportioned and should provide sufficient revenue for financing the proposed program. Expenditures and revenues should be balanced. In presenting the budget the superintendent should be in a position to justify every item included and should be careful to give full explanation and full publicity not only to the Board of Education but also to the community. In administering the budget the superintendent should bear in mind the fact that the instrument is to be followed as closely as possible. There should be careful and systematic check on expenditures to be sure they have not exceeded the appropriations. All funds provided for in the budget should be systematically and regularly audited.

The budget making is, after the school staff has been selected, one of the most important single responsibilities of the superintendent. The way the budget is set up affects every part of the work of a school system. To a very considerable degree it influences the quality of instruction offered. Preparation of the budget, therefore, should be given careful study by the administrator, and the process of preparing it should be regarded as of utmost importance by all persons participating.

While there is considerable variation in the form of budgets, especially with respect to the division on receipts, there is reasonable uniformity in the budget headings for expenditures. Most budgets now list the following eight subdivisions: (1) general control, (2) instruction, (3) operation, (4) maintenance, (5) coordinate activities and auxiliary agen-

cies, (6) fixed charges, (7) debt service, (8) capital outlay.

Many states prescribe in their statutes the form budgets must take, and several state departments print blanks for distribution to the school system in the interest of uniform budgeting and accounting practices. The National Education Association and the United States Office of Education have given much stimulus to a movement toward uniformity in this connection.

Budgetary Procedure. Budgeting in public schools involves four major steps: (1) preparation, (2) presentation and adoption, (3) administration, and (4) appraisal.

(1) The preparation of a budget is a difficult and continuous task. In most districts the superintendent of schools prepares, with staff and board assistance, an educational program on which the budgeted estimates are to be based. Of specific aid in the preparation of the budget is a budgetary calendar which consists of a chronological schedule of dates with the specified budgetary procedures to be performed on or before the designated date.

(2) The tentative budget ought to be presented to the people as well as to the Board of Education. In fiscally dependent school districts the budget must be presented to some other reviewing body, such as the city council. In various local, state, and national surveys it has been found that many school district officials are guilty of a serious sin of omission in not recording in the board minute book the fact that a budget was presented and adopted in conformity with the existing laws. Too often tax fighters use the district's neglect as an excuse for cutting the levy for school purposes.

(3) After the budget has been adopted it should not be left to accumulate dust in a file but should be put to work. The budgeted estimates should be transferred to the accounting books where they serve as red warning signals at the head of the columns. In general the adoption of the budget by the board constitutes an authorization for the administrator to make the expenditures within the rules and regulations of the board. In public school administration, particularly in military and economic crises, numerous extrinsic factors beyond human control make the administration of the budget an extremely difficult task. Although the accumulative im-

pact of these fortuitous factors makes budgeting difficult, they also render it indispensable.

(4) A specific means for evaluating budgets and budgetary procedures is the school audit, which is a critical examination of the school accounts by competent persons, preferably trained in accountancy and education.

Capital Outlay. Money spent for anything (excluding supplies) that results in an increase in the total amount of property possessed, or in additional values, or in increased efficiency of property already owned, is referred to as *capital outlay*. In allocating expenditures care must be exercised not to confuse capital outlay with maintenance of plant. The major expenditures for capital outlay are purchase of land, improvement of new and old sites, erection of new structures, alterations of and additions to old buildings, and purchase of furniture and instructional apparatus for new and old buildings.

Planning Capital Outlay. Meticulous attention to details coupled with long-term forecasts should characterize the planning of capital outlay expenditures. There is more waste in planning and constructing school buildings than in any other school expenditure. Child accounting data, such as the continuing school census, and community surveys, such as spotting the homes of pupils on a map, furnish valuable information on which to project plans for school buildings.

Capital Outlay Budget. This is the section of the school budget containing the estimates of such proposed expenditures for permanent improvements as those indicated in the paragraph on *Capital Outlay*. The capital outlay budgets are usually of two types—the annual estimate, and the proposed long-term budget.

Cost of Public Education. How large an enterprise public education is in the United States is apparent from even a cursory survey of the number of pupils and teachers involved. In 1938 there were 221,660 public elementary schools, 25,467 public high schools, and 209 public junior colleges in the United States. This represents, in relation to 1936, an increase of 22 junior colleges, a decrease of 185 high schools, and a decrease of 10,514 elementary schools. The large decrease in elementary schools is due chiefly to the closing of one-teacher schools through consolidation. In 1938 the elemen-

FINANCE, SCHOOL

tary schools were staffed by 595,000 teachers, of whom 70,000 were men and 525,000 were women. The enrollment of pupils was 19,843,000. There were 282,000 high school teachers, consisting of 116,000 men and 166,000 women. High school students numbered 6,270,000. The average annual salary of all public school teachers, including principals and supervisors, was \$1,374.

In 1938, schools were in session, on the average, 174 days. Eighty-six per cent of the pupils enrolled were in attendance each day, making 149 days of schooling for the average pupil.

The properties of the public elementary and secondary schools of the nation were valued in 1938 at \$7,991,000,000. During the year 1937-38 they received a total income of \$2,493,000,000, of which 2 per cent came from federal funds, 30 per cent from state funds, 65 per cent from county, city, and district funds, and 3 per cent from nonpublic sources. The total expenditure was \$2,233,000,000, of which 10.7 per cent was expended for sites, buildings, and equipment, 58.6 per cent for salaries, and 30.7 per cent for all other items. This total represented a school cost of \$17.15 per capita of population, an expenditure of \$99.70 per pupil in average daily attendance, or 57 cents per pupil per day.

The public school population in 1938 represented 20 per cent of the total population of the nation. It was estimated that of every one thousand adults over 21 years of age 115 were high school graduates. A total of 16,350,000 high school graduates were living at that time. The number of persons graduated from high school for every one hundred 17-year-olds had risen from 6.4 in 1900, to 16.8 in 1920, to 29.1 in 1930, and to 45.6 in 1938. The increased holding power of the school in revealed further in another comparison. Of one thousand pupils in Grade V in 1930-31, 42 per cent were graduated from high school in 1938; the corresponding proportion for 1931 was only 27 per cent.

The amount spent per pupil in average daily attendance varies from state to state and is conditioned in many states by the number of Negro pupils in the schools. For instance, Mississippi spends approximately \$52 per white pupil in average daily attendance and about \$8, or approximately one-

seventh as much, per Negro pupil. New York State spends more than twenty times as much for every pupil as Mississippi spends for a Negro pupil.

It is interesting to note that the proportion of money which is being provided by the state governments for the support of schools has been steadily increasing. In 1926 the states contributed approximately \$134,000,000, or about 15 per cent of the total cost of public schools, while in 1940 the amount had increased to \$659,000,000, or more than 30 per cent. This is a desirable trend in that the larger the amount of state aid provided for school purposes, the higher the level of equalization of educational opportunity throughout the state.

The most complete and accurate data on the costs of education are compiled by the United States Office of Education, a subdivision of the Federal Security Agency. Each biennium this agency publishes a *Biennial Survey (q.v.)* containing extensive information on the expenditures of the various states and major cities by type and level of education and in terms of standardized unit measures.

Cost Accounting. This search for detailed fiscal information is designed to reveal the actual cost of each item or service rendered. Applied to education, cost accounting is the painstaking task of calculating the costs per unit, such as the money spent in heating a cubic foot of classroom space.

Data on costs are essential in the efficient management of schools. Cost finding is a difficult process in education because of the many variables. A committee of the Michigan Education Association listed forty-nine variables in comparative public school cost accounting, including types of heating systems, length of the school day, age and type of school buildings, amount of educational supplies furnished free to pupils, etc.

Costs have a qualitative as well as quantitative aspect. Usually the more money that is spent for instructional purposes the better the quality of teaching. Costs must be evaluated from the long-time as well as the immediate benefits to society.

In its publication, *Why Schools Cost More*, the Research Division of the National Education Association listed among the major reasons for the rise in school expenditures: the

decline in purchasing value of the dollar, the higher standards of education, and the increase in the size of the educational tasks assigned the schools.

Unit Costs. A unit cost is a specific instrument for measuring costs, as for example the expenditure per cubic foot for heating a school building. The measure used will depend largely upon the purpose for which it is intended. A unit such as a cubic foot may be satisfactory for measuring the cost of heating but not for instruction. The units selected to measure school costs should be easy to define and should have high validity and reliability. The highest possible degree of specificity should be used in defining the cost units.

Student Costs. One of the units frequently employed in cost accounting is the student or pupil. For example, in the United States in 1938 a total of \$2,233,110,054 was spent for educating 25,975,108 elementary and secondary school pupils in public schools. This amounted to an annual unit cost of \$85.97 per pupil enrolled. To the lay public the meaning of such a per capita cost is more readily understood than is that of some of the other measures. The unit may vary as to length of time covered, as per semester or year, and as to the kind of coverage, as cost per pupil for instruction or for transportation. The student cost data help to "personalize" accounting and form a helpful reportorial device.

Student Clock-Hour Cost. This represents the cost of one hour for each student. Class periods from 50 to 60 minutes are usually counted as a clock hour. If a history class of 30 students meets one hour per school day for a semester of 18 weeks, a total of 2,700 clock hours of instruction is represented. These costs are not used widely.

Student Credit-Hour Cost. This is more widely used than the student clock hour and is employed usually in higher education. It represents one student under instruction for a period of time for which one hour of credit is granted. If the history class mentioned in the preceding paragraph carries five hours of credit, then a total of 150 student credit hours is represented.

Student Subject Unit Cost. This is the cost for such an item as instruction or supplies or total costs for each student for each subject

he takes for a definite period of time, as the cost per student per year in mathematics or English. These costs are frequently used in budget building to determine the probable cost of instructional supplies.

Subject Costs. As indicated in the preceding paragraph the unit of measure may be based on the subject taught, such as mathematics or English. The specific unit may be the cost of a subject per pupil, as above, or the cost of teaching a subject irrespective of the number of pupils enrolled. While studies of subject costs are helpful to the school administrators, there is danger that the results may be overemphasized.

Grade Unit Cost. Here the yardstick used is designed to measure the cost of a particular grade, as seventh grade in comparison with twelfth grade. Usually the higher the grade on the academic ladder the greater the cost.

Textbook Cost. In calculating these costs the numerator is usually the cost of supplying school books to pupils and the denominator, the number of pupils. This unit is frequently employed in preparing budget estimates.

Student Accounting. (See PUPIL ACCOUNTING.)

Cost accounting in education is in its infancy. The need is for greater uniformity in accounting practices and for a greater number of cost accountants.

Debt. There are two principal types of indebtedness for educational purposes: (1) *bonded debt* (described earlier in this article), and (2) *warranted indebtedness*. Warranted indebtedness is that which is incurred through short-term loans, such as warrants, orders, and certificates. Usually it consists of outstanding checks, although in the case of school districts these checks are frequently called "warrants" and bear interest when they cannot be paid promptly. A warrant must be registered with the issuing agency and upon registration begins to bear interest at a prescribed rate. However, when the registered warrant is called for payment, interest ceases and the person who holds the warrant must cash it. Many states make legal provisions for the issuance of warrants in case of anticipation of the collection of funds, the terms and amounts of the warrants being fixed definitely by statute.

Most states prescribe a limit on school district indebtedness. Generally speaking, the

limit on bonded debt is usually about 5 per cent of the assessed valuation of the district. There is usually no legal limit on the amount of warranted indebtedness that may be incurred, although the credit of the district is weakened when excessive amounts of warranted indebtedness are incurred.

Debt service is the term used to describe funds allocated to the payment of interest or the repayment of debt, whether bonded or otherwise. The laws of most states prescribe that the school district must automatically set aside sufficient funds to meet the interest payments and repayments of principal on its debts. The levying and collection of taxes for the payment of this interest are usually automatic and constitute the first lien on the revenue of the school district.

In 1940, the amount of outstanding bonded indebtedness for public school purposes in the United States was approximately \$3,000,000,000, or about \$135 per pupil in average daily attendance in the public schools. The amount has remained fairly stable since about 1932. There is considerable variation by states, however. Complete data on school indebtedness by states may be obtained in the United States Office of Education's Biennial Surveys (*q.v.*).

Depository for School Funds. A depository is a bank or financial institution in which school funds are placed until expended. Among the common regulations concerning these depositories are the following: the safety of public funds for children should be placed beyond the reach of selfish individuals; private banks should not be approved as depositories for school funds; the selection of depositories should not be left with one individual; and, obviously, the depositories for school funds should be approved by the board of education.

Small school districts with funds amounting to less than \$5,000 are protected through the federal regulation insuring such deposits in approved banks. Some large districts demand collateral, such as federal, state, or local bonds, as security for public school funds.

Fiscal Year. A fiscal year is a financial year or that legal period of twelve months used for purposes of financial accounting. The most common dates for the school fiscal years are July 1 to June 30, used by approxi-

mately 60 per cent of all school districts. The next most common date is January 1 to December 31; about 15 per cent of all school districts use this period.

The period July 1 to June 30 is unquestionably the best to use for a school fiscal year. The beginning of that period comes during summer vacation, when schools are usually not in session, which is a convenient time to introduce a new accounting period. The state laws of most states provide that such a period shall be used for other governmental agencies, and the Federal government also uses this fiscal year.

Revolving Fund. Many school systems have a fund which is revolving in that the money is turned over repeatedly. For example, the board of education may establish a revolving fund for the purchase of school books to be resold to students. The term "advancements" is also used, since the money involved is not a true expenditure or receipt.

A.E.J. and C.A.D.Y.

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FIRE DRILL — See FIRE PROTECTION; SAFETY EDUCATION.

FIRE PROTECTION. Protecting the lives of children and valuable school property against fire is the obligation of every person connected with the school. The board of education should provide fire-resistive buildings, should furnish fire-prevention

equipment and fireproof boiler rooms, stairways, and corridors, should make provision for proper care of rubbish, and should provide fire escapes, panic-proof doors, and sufficient corridors, stairs, and exits for rapid evacuation of the building. The board should also see that annual inspections are made by the fire marshal and should enforce strict rules and regulations concerning the disposal of trash, the care of inflammable materials, and the avoidance of other fire hazards.

The custodial staff must keep all fire-fighting apparatus in good condition. They must see that all door exits and fire escapes are in good working order, that all inflammable materials are stored outside of school buildings and protected against heat, that all closets are kept clean, and that all waste and trash are properly destroyed.

Most states require every school to hold a fire drill at least once each month or a specified number of times during the period in which the school is in session as a means of establishing a routine for the efficient and safe removal of pupils and teachers from the school building in the event of a fire or other emergency. To safeguard the health of the children, unnecessary exposure during extremely severe weather is prevented by holding fire drills frequently during the beginning of the school term and seldom, if at all, during the more inclement weather of the winter months.

An adequate fire drill program makes provisions for drills to be held at different hours of the day or at any times at which a fire might occur; for adequate instruction in the rules to be followed during fire drills or in the event of a fire; and for some means of evaluating the effectiveness of the fire drills in order that the highest degree of efficiency may be achieved. (See SAFETY EDUCATION.)

L.E.M. and M.F.S.

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FISCAL YEAR—See FINANCE, SCHOOL.

FISHER, HERBERT, A. L. (1865-).

Herbert Fisher, the historian, is associated especially with the important education act passed by the British Parliament in August, 1917. At that time, he was Minister of Education in the World War I cabinet of Mr. Lloyd

George, following upon a career of active public and educational service. Passed by Parliament while Britain was at war, the Fisher Act was hailed at the time as an act to make England "a land fit for heroes."

Provisions of the Fisher Act: The general purpose of the act was the establishment of a national system of education, available to all capable of profiting thereby. Its essential features were the abolition of the half-time system, the extension of full-time compulsory school attendance to the age of fourteen without exceptions, the requirement of part-time attendance at continuation schools up to sixteen with provision to extend the requirement to eighteen, and the control of the employment of children. The act placed upon the county and county borough councils the duty of "providing for the progressive development and comprehensive organization of education" in their areas, with powers to provide nursery schools, to increase and extend existing provisions for school medical inspection and treatment, to aid research, and to provide maintenance allowances. With the requirement that each local authority prepare and draft schemes of education periodically, went the provision that no child capable of profiting by it should be deprived of an opportunity for further education.

The Fisher Act was the foundation on which the progress of education in England was built after 1918, despite the fact that "the appointed day" for putting the continuation school requirement into force was never fixed by the Board of Education and despite retrenchments due to economic conditions. World War II stimulated the proposal of plans for the further reconstruction of the educational system. (See ENGLAND AND WALES, EDUCATION IN.) I.L.K.

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FITCHBURG PLAN. The credit for establishing the first cooperative industrial education course at the secondary school level in the United States goes to Fitchburg, Massachusetts. Daniel Simonds, president of the Simonds Manufacturing Company, was largely responsible for introducing coopera-

tive education in Fitchburg. The "Fitchburg Plan," an adaptation of the Cincinnati Plan (*q.v.*), was begun on August 1, 1908, and, although not now in operation, existed in Fitchburg for many decades. The Cincinnati Plan was worked out at the college level, whereas at Fitchburg adaptation was made to the requirements commonly met at the secondary school level. Cooperative education programs at the college level often call for periods of work in industry of a semester, or even a year, in length. In secondary schools the students rotate between employment and school on half-day, one-week, or two-week periods.

During the economic depression of the early nineteen thirties, many programs of cooperative education became inoperative. The programs were greatly reduced or completely abolished because jobs were scarce; the older workers with family responsibilities were retained whereas young learners were dismissed or put upon waiting lists. The cooperative education plan of combining schooling with work under actual employment conditions as carried on at Fitchburg, at York, Pennsylvania, and at many other places in the United States is an excellent plan, but one that requires constant attention, especially in years when unemployment is high. (See CO-OPERATIVE EDUCATION.) F.T.S.

FIVE FORMAL STEPS—See HERBART; INDUCTIVE METHOD.

FIXATIONS IN READING—See READING, EYE MOVEMENTS IN.

FLASH CARDS. Any piece of paper or cardboard with written or printed material that is to be recognized as soon as it is exposed or shown is called a *flash card*. *Flash* implies that the card is shown quickly, that is, for a very short time, and at the end of this interval the pupil or pupils should be able to give the response desired.

This device is used especially in the elementary grades, primarily to give training and drill in word recognition and the fundamental processes in arithmetic.

for example, the combination 8 in addition is printed on the card which is flashed or shown for a few seconds, after which the pupil called upon is expected to give the sum

immediately. In reading, phrases and short sentences may be used on cards to give training in developing the recognition span. While no fixed limits can be set for the purposes of flash cards, the principal purpose is confined largely to drill in some fundamental process.

Flash cards are not used as widely today, even in the elementary schools, as formerly. The decreasing emphasis on the learning of unrelated factual material and the increasing attention to the child's ability to use his knowledge and his skills in the solution of problems necessarily reduces the importance of such a device as the flash card which stresses automatic responses rather than interpretation and application. Thus the lessened emphasis on the memorization of dates in history and of locational details in geography has made less frequent the use of flash cards in history and geography.

Where drill is necessary, the tendency is to conduct the drill in a meaningful setting wherever possible rather than by so artificial a means as flash cards. The teacher of reading prefers to have the child increase his reading vocabulary by extensive reading rather than by practising the recognition of unrelated words on flash cards. Similarly, the arithmetic teacher prefers to have his students use the arithmetic combinations meaningfully, as in the many situations arising from the conduct of a class drive for Red Cross funds, than by flash card drills on isolated combinations.

As a result of the decreased emphasis on flash cards, it is now possible for the teacher to reserve their use for those drill exercises for which they are particularly appropriate and to emphasize their usefulness for meeting the needs of individual children. (See DRILL; READING, REMEDIAL.) F.A.B.

FOLK HIGH SCHOOLS. The folk high school, the most distinctive educational institution of Denmark, represents one of the significant movements in adult education. It is a boarding school for adults from eighteen to twenty years of age, which offers a two-year course of study following the eight-year elementary school and the four-year continuation school. It is a people's high school, intended for all—rich and poor, urban and rural—although for the most part the students come from rural districts. It resents standardization and varies its program to meet the needs of its

pupils, but it is always religious in spirit and always aims at dignifying and vitalizing life. It has had great national influence, particularly in raising the standards of rural life and in improving the social, economic, and cultural conditions of the farming classes. The work of the school is closely related to the needs of the farm population, although the course of study is cultural rather than narrowly practical or vocational. The folk school has discarded the idea that one of the aims of education is higher salaries or more important positions; rather, it directs the thinking of its students toward the welfare of society, devotion to the Fatherland, and improvement of economic conditions in Denmark. The close relation of the folk schools to farm life has developed fellowship and common interest, and a recognition of mutual interdependence, on the part of the agricultural workers.

The folk high schools were established as a result of the educational thinking and activities of Kristen Kold, a leader in the movement to make Danish schools free and to make them a joyous and happy place for children, and Bishop Grundtvig, who is widely known as a Danish religious and educational leader. These schools are perhaps the strongest, the best organized and directed, and the most capably taught of all Danish schools; and they have had a world-wide influence upon the adult education movement. (See also DENMARK, EDUCATION IN; SWEDEN, EDUCATION IN.) E.H.W.

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FOLKWAYS—See MORES.

FOREIGN LANGUAGES, TEACHING OF — See CLASSICS, EDUCATION IN; LATIN, TEACHING OF; MODERN FOREIGN LANGUAGES, TEACHING OF.

FORESTRY EDUCATION. Professional education in forestry was first undertaken as a four-year undergraduate curriculum at Cornell University in 1898. This School was discontinued in 1903, revived in 1911, and finally closed in 1940. Postgraduate instruction was instituted at Yale University in 1900

and has been continuous since that date. The University of Maine, University of Michigan, and Michigan State College began undergraduate instruction in 1902, followed by Iowa State College and Harvard University in 1903. University of Minnesota in 1904, and Pennsylvania State Forest Academy, Mont Alto, in 1905. In the South, the University of Georgia established a school of forestry in 1905, while on the Pacific Coast the University of Washington was the pioneer, in 1907. With the exception of Harvard, whose undergraduate instruction was discontinued and placed on a postgraduate and research basis in 1914, Yale University, which is wholly postgraduate, and Duke University, which established a postgraduate School of Forestry in 1938, the curricula in professional forestry offered in existing schools are for undergraduates, although postgraduate instruction leading to the degree of Master of Forestry (M.F.) is also given at 13 other institutions and the degree of Ph.D. was awarded at eight schools in 1941. Including 1941, the number of undergraduate degrees awarded in professional forestry is 11,013, and Master's degree 1,996.

In the first two decades of forestry education, the curricula were patterned somewhat after those of European schools of forestry and considerable material was drawn from German, French, and Scandinavian sources. Education was aimed at preparing students for employment with the federal agencies, chiefly the U. S. Forest Service, later for numerous state forestry departments, and not until much later for employment by private industry, though a few pioneers entered this field early in the century. Since field conditions on these public forests did not lend themselves to intensive silvicultural practice but demanded practical training in fire fighting, construction of improvements, the supervision of logging on timber sales, and the acquisition on the open market of vast areas of forest land by purchase from private owners, these requirements rapidly modified the character of instruction given in the schools some of which moved rather far towards the vocational side of training. With the advent of interest in forestry practice by large private timberland owners, which took form after 1915 and was greatly stimulated by the N.R.A. legislation during the depression of

1932 requiring minimum silvicultural requirements in woods operations, pressure arose to give to instruction in forestry a more practical business basis, which would fit the graduate to cope with problems of accounting, marketing, and organization of woods and mill operations. These trends towards vocational and business training were offset, first, by the development of a large field of experimental research in the Forest Service and in state organizations which laid emphasis on basic sciences and intensive training in ecology, silvics, soils, higher mathematics and statistical methods, bearing on the problem of reproducing and growing forests, and second, by a parallel development in the field of wood technology and products, including chemistry, paper making, and many lines of fabrication of new products.

Previous to 1930, efforts had been made by professional schools to agree upon subjects which should be included in a professional four-year undergraduate curriculum in forestry, and most of the 20 institutions giving such instruction in that year followed rather closely the pattern advocated. Differentiation had already set in at certain institutions, notably the New York State College of Forestry at Syracuse, which offered curricula with separate majors in forest management, game management, forest entomology and pathology, landscape and park engineering, forest recreation, arboriculture, technical properties of wood, conversion and distribution, and pulp paper manufacture. A cleavage developed in several institutions between curricula centering on land management, and those dealing with the logging, manufacture and utilization of wood and its products, and this differentiation is extending into several institutions. A further cleavage arises between curricula dealing with either or both of the above branches of forestry and those treating of wildlife management and range management which during the decade of 1931-40 became well organized and prominent in schools of forestry, giving rise to some confusion as to the limitations of a professional forestry curriculum.

In 1930 the Society of American Foresters received a grant of \$30,000 from the Carnegie Corporation for a critical study of Forest Education, which was conducted by Dean

Henry S. Graves of Yale and Prof. C. H. Guise of Cornell, resulting in the publication of *Forest Education* (Yale University Press, 1932), which defined the standards which would be reached by existing institutions.

In 1935 the Society of American Foresters undertook a critical analysis of all existing schools, and, complying with its Constitution, gave accredited status to 14 institutions. As the result of later compliance with standards set, six additional schools were accredited as giving adequate professional forestry instruction. In 1941-42 a revision of the status of forestry schools was initiated, in which 24 institutions were inspected. H.H.C.

FORGETTING—See MEMORY.

FORMAL DISCIPLINE. Etymologically, to discipline (Latin *discere*) means to teach. Ordinarily, however, it means something more; it means to teach according to some particular rule or pattern. Since order or pattern is the very essence of form, the phrase, formal discipline, is somewhat redundant. The important respect in which "formal" modifies "discipline" becomes more clear when the particular pattern to which teaching is to conform is indicated. Conventionally, it is the form of the mind rather than the content of the subject matter which is to guide the teacher in his efforts. He is to provide exercise in such traits as reason, memory, imagination, will, and the like rather than mastery of such subjects as language, science, history, and mathematics.

The emphasis on the form rather than the content of learning has been variously stated theoretically. Since the content of education appears to have no limit in amount and variety, it would seem an economy of effort to direct the major attention of education, not toward the endless task of mastering content, but toward training in those forms of thought and action in which all learning content is cast. But formal discipline finds its chief support in the theory that practice in such traits as reasoning or memorizing with one type of subject matter will improve these mental processes in general and therefore be available in other subject matter fields as well. Furthermore, where reason, memory, imagination, and will are thought to be faculties of the mind, faculty psychology itself lends reinforcement to the theory that educa-

tion should be primarily concerned with their exercise.

So stated the theory of formal discipline extends far back into antiquity. It has been asserted most prominently and frequently in periods of cultural lag. Thus, when subjects originally introduced into the curriculum for utilitarian purposes, continue to be studied in a later period when their obvious usefulness has disappeared, there is a strong tendency to justify this persistence in terms of the formal discipline they afford. Indeed, some subjects, notably Latin and mathematics, have come to be noted in the course of educational history as the disciplinary subjects par excellence.

It was not till the end of the nineteenth and the early part of the twentieth century that the theory of formal discipline was scientifically investigated. A large variety of experiments was then performed to test it as a theory of "transfer". A summary of the results of these studies would seem to indicate that (1) the casual transfer of improvement from exercise in one field to that in another is not nearly so great as had been claimed nor does the improvement transfer equally and uniformly (2) the transfer may be negative as well as positive, that is, instead of improving exercise in the second field, it may actually hinder it (3) to the extent that transfer does occur, it is a transfer, not of the power to reason, memorize and the like, but of facts and information, or, skills, procedures, and attitudes which were identical in the two opportunities for exercise, and (4) transfer usually takes place most effectively when it is one of the objectives of both the teacher and the learner. (See also TRANSFER OF LEARNING.)

J.S.B.

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FOUNDATIONS OF EDUCATION.

The term *foundations of education* has come rather rapidly into the vocabulary of teacher education during the last decade or two and perhaps most often refers to the common or basic preparation that all prospective educators should have despite their respective specialties of subject matter or educational func-

tion. In the past, such courses have sometimes been known simply as "education" courses to distinguish them from the usual academic subjects in colleges or teachers colleges. They have also been distinguished from "methods" courses in special fields by virtue of their attention to the basic principles upon which practice rests. In general, the courses in the foundations of education have included history of education, philosophy or principles of education, educational psychology, educational sociology, educational economics, comparative education, and similar courses.

In more recent times, and principally since the depression days of the early 1930's, some far-reaching changes have begun to appear in the foundations of education in some colleges and universities. The impact of the first World War, the depression, and another war has made educators realize more fully that they must study and understand thoroughly the relations between education and the surrounding culture. The original principle was maintained that this was a task that should be common to all educators, no matter what their subject field, function, or level at which they worked, but it was now evident that the task of understanding the relation of school and society could not be done adequately in separate, discrete courses in education.

Thus a second principle was emphasized, namely, that a more coordinated and integrated course in the foundations of education should be provided as a basic course in the preparation of teachers and administrators. This meant that such a course would deal with the fundamental social and cultural problems of our time by drawing upon history, philosophy, psychology, sociology, government, economics, anthropology, and the other arts and sciences, as they were needed.

A third principle of organization that often appeared was the insistence that the foundations of education are practical as well as theoretical. Their main concern is to relate theory to practice, to improve educational practice by a broader understanding of the individual and the culture, and to develop appropriate beliefs and attitudes among teachers as the basis for improved practice.

A fourth principle that appeared and one that has sometimes evoked considerable opposition was that the purpose of educational

foundations courses is not only to help the student to examine and understand our culture in relation to education but also to help him make decisions as to the best action to take in matters involving social and educational policies. Whenever educators purposely enter the controversial areas of public decision, they are likely to be criticized not only by some of their colleagues but also by the public. But the proponents of the foundations approach have insisted that such problems must be dealt with and that sound points of view must be adopted, for the real concern of the study of education is the life of people as it is actually lived, not merely the structure of the formal school but the organization of the society in which the school exists.

The principal aim, then, of the course in foundations of education may be said to be a fundamental consideration of the nature and role of the organized educational enterprise in a democratic society. The scope of such a course is inevitably broad and is likely to include three major kinds of approach: The first is a study of the major social institutions that men live by, political, economic, and religious. Such a study may entail consideration of the origins and development of such concepts as democracy, liberalism, capitalism, industrialism, nationalism, internationalism, science, religion, and art in the various institutional forms in which they have been developed in America and in the rest of the world. A second approach is the study of the basic knowledge, beliefs, ideas, and attitudes that men live by. This may include a re-examination of our convictions about human nature, human destiny, self and personality, the learning process, thinking and intelligence, and science, art, and religion as ways of life. A third approach is the study of the effect such institutions and beliefs have had in the past and should have in the future upon the conduct of education, its aims, curriculum, methods, administration, organization, and the educational profession as a whole.

In general the foundations of education courses have tried to recognize and assimilate the best and most recent evidence appearing in the various fields of science, art, and social studies. Such an effort is difficult for any one instructor to undertake by himself and thus the practice of using panels for instruction has sometimes appeared. Panel teaching

makes it possible for representatives of different fields of scholarship to bring their special resources to bear upon the common problems, but the success of such cooperative teaching requires considerable and continuous planning by the panel members. (See PANEL DISCUSSION.)

Another procedure that sometimes accompanies the foundations course is the use of small discussion groups in which the students not only discuss the subjects for study but try to make decisions and arrive at mature points of view that will lead to action. In this way, practice in an essential phase of the democratic process goes hand in hand with the development of a working philosophy of life and education, a philosophy that will not only be satisfactory to the individual himself but will also have much in common with that of others. (See TEACHER EDUCATION.)

R.F.B.

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FOUNDATIONS, PHILANTHROPIC.

There is no standard title for corporate charitable funds. The first name is commonly *philanthropic*, *educational*, *charitable*, or *eleemosynary*; the last name is as commonly *foundation*, *fund*, *endowment*, *trust*, or *board*. They operate under individual charters, usually granted by state authority, or under the general charitable trust statutes of a state.

Philanthropic foundations are the product of a relatively mature capitalism and consequently, in the United States, are twentieth century creations. Some 600 foundations have been established in the United States but not more than 300 are active, and only 125 supply financial data which can be analyzed. According to most reliable estimates the total capital assets of American foundations approximate \$2,000,000,000. Twenty of the largest foundations have \$625,000,000 in assets; this is 87 per cent of the capital funds of the 125 foundations whose assets are definitely known.

It is as difficult adequately to characterize foundations by type or class as it is to list colleges, hospitals, newspapers, and similar social agencies. Foundations may be classified by field of major interest (e.g., education,

music, medicine), but such a category is not suited to the breadth of interest of the larger foundations. From the standpoint of an applicant for grants it is also important to know the geographical area served; some foundations operate in a single community, county, or state, while others are national or international. Students of foundations frequently classify them by the method of holding principal funds—some must hold the principal fund in perpetuity as endowment, in others it may be spent, and in still other foundations it must be spent in a specified number of years. Another way to classify foundations is by the source of the principal fund—if it comes from the gifts and bequests of many individuals the foundation is usually called a *community trust*.

The policies of a foundation are determined by a self-perpetuating board of trustees and carried into effect by an administrative staff. The organization and the quality of the personnel are very similar to those of privately controlled colleges and universities. A number of foundations act as their own operating agents and hence make no grants to outside agencies or persons. Other charitable trusts grant all their income to a single university or other operating agent. The largest group of foundations operates primarily through grants to outside independent agencies and persons, but there is a marked tendency toward restricting grants to a few agencies. For example, a diligent search discovered that only 453 of America's some 1500 colleges have ever received a foundation grant. The nine foundations that made approximately 90 per cent of the grants to colleges during the twentieth century concentrated 73 per cent in 20 institutions and scattered the other 27 per cent in 310 colleges.

Certain cultural areas are favored by foundations that make grants to outside agencies. Their interests are indicated by the proportion of \$528,420,034 which each of the following cultural areas received from 100 foundations in the decade 1921-30: education 43 per cent; health 33 per cent; social welfare 14.5 per cent; recreation 2.1 per cent; international relations 1.5 per cent; religion 1.4 per cent; law and government 1.3 per cent; miscellaneous and the cost of administration 3.2 per cent. Higher education projects re-

ceived three-fifths of the 43 per cent allocated to all types of education.

Higher education has been a highly favored field of foundation activity. The chief interest has always been in promoting research and implementing innovations. However, prior to World War I they did not promote many such activities because the public distrusted foundations, fearing they would come to control higher education in the fashion that business corporations dominated the economic life of the country. Foundations, therefore, began by helping selected colleges strengthen their general facilities through unrestricted grants to endowment and capital purposes. By 1920 the foundations had given \$220,000,000 to general endowment, so conditioned as to stimulate others to give an additional \$660,000,000; in the same period they had given, usually on condition that the recipient secure at least an equal sum from other sources, \$50,000,000 for capital outlay purposes.

Through grants for professors' pensions that required the college to meet specified standards, the Carnegie Foundation for the Advancement of Teaching provided a powerful incentive for improving teaching and research facilities. To achieve these ends the Carnegie Foundation has already given \$30,000,000 in pension grants and has assumed obligations which actuaries estimate will require \$69,000,000 to liquidate. Additional millions have been given for building, equipping, and endowing such research facilities as the Food Research Institute at Stanford University.

As another long range step in fostering research, the foundations have aided the training of personnel through grants for fellowships, scholarships, loan funds, and other forms of grants-in-aid. The aggregate of these grants within the United States has passed the \$30,000,000 mark, and they continue to supply approximately \$1,500,000 annually for this purpose. More foundations make grants for fellowships and student loans than for any other one purpose.

Research in professional fields first enlisted the aid of philanthropic foundations. Such research within the United States received \$214,000,000 during the first three decades of the twentieth century. Medical education received the lion's share, \$154,000,000; the

profession of teacher training or education *per se* received \$30,000,000; dental education \$10,000,000; legal education \$5,000,000; and the remainder went to such other professional fields as engineering, music, nursing, library science, forestry, and agriculture. The composite pattern of the grants to education is probably similar to that of the Carnegie Corporation where 48 per cent of the grants were for surveys and other practical studies aimed at immediate improvement, 24 per cent for research intended to advance educational knowledge, and 28 per cent to councils of learned societies and similar organizations to be used for the advancement and diffusion of education knowledge.

Grants for development and research in non-professional fields of higher education have practically all been given since 1920. In the decade 1921-30 grants aggregated \$65,000,000, increasing from \$2,800,000 in 1921 to \$10,400,000 in 1930. The shift in areas of interest during the decade is indicated by the fact that in 1921 the natural and physical sciences received \$1,300,000, the social sciences, \$182,000, the humanities \$46,000, while in 1930 the three areas received respectively \$3,800,000, \$5,300,000, and \$478,000. During the decade the natural and physical sciences received grants aggregating \$22,700,000, the social sciences \$27,400,000, and the humanities \$4,200,000.

The space allotted this article does not permit even a brief analysis of foundation interest in such marginal fields of higher education as photoplay appreciation and production, uses of radio in education, international peace, mental hygiene, housing and city planning projects, museum education, and public administration. Neither does it permit statements on foundation interests in research and the dissemination of knowledge in such fields as social work, adult education, child study and parent education, and other projects as near to the growing edge of American culture. For information on grants in these areas and for more detailed statements on the analyses, given items of the bibliography should be consulted, along with a study of the periodical reports of such foundations as the Bamberger Foundation, Buhl Foundation, Carnegie Corporation, Carnegie Endowment for International Peace, Carnegie Foundation for the Advancement of Teaching, Children's

Fund of Michigan, Commonwealth Fund, Duke Endowment, Falk Foundation, General Education Board, Guggenheim (J. S.) Memorial Foundation, Kellogg Foundation, Milbank Memorial Fund, New York Community Trust, Rackham Fund, Rockefeller Foundation, Rosenwald Fund, Russell Sage Foundation, Southern Education Foundation, and the Wieboldt Foundation. E.V.H.

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FRANCE, EDUCATION IN. Throughout the nineteenth century and up to the collapse of the country in 1940 the French system of education was marked by a high degree of centralization. Administrative control over most aspects of education was vested in the Ministry of Public Instruction, while the control of some aspects, such as vocational education, was left, until 1929, to other relevant Ministries. The principle of centralization—which was adopted during the Revolution as a means of breaking down regional loyalties, was continued by Napoleon, and was intensified during the nineteenth century—was preserved under the Third Republic as a safeguard against enemies from within and without, and to promote national solidarity. Thus the schools were secularized in opposition not to religion but to the power of religious organizations; schools were closed one day each week to enable pupils to receive religious instruction.

At the head of the system was the Minister of Public Instruction and Fine Arts (after 1932 the Minister of National Education and Fine Arts), appointed as a member of the Cabinet by the President from the dominant political party in power. He was responsible

for legislation, for the preparation and presentation of the budget, and for decrees and regulations. He acted as intermediary between the Ministry and Parliament and was in general charged with developing educational policy. The permanent conduct of educational affairs was in the hands of the permanent staff, distributed in various sections, and of bureaus devoted to special branches of the educational organization. To keep in touch with educational opinion in the field the Ministry had the advice of the Higher Council of Public Instruction (*Conseil Supérieur de l'Instruction Publique*), whose members were appointed by the President or elected by their own representative groups for each branch of education. The Council discussed and advised on courses of study, methods of instruction, examinations, administrative and disciplinary regulations, private schools, and textbooks. Recommendations for appointments and promotions were made by the Consultative Committee (*Comité Consultatif*) with ex-officio and elected members. Finally, the Ministry was assisted by twelve general inspectors, resident in Paris and making periodic visits to inspect their respective branches of specialization.

Thus the chief characteristics of the French system were wide powers entrusted to the Minister, employment of experts, clear definition of functions, and consultation with representatives of the teaching profession so that a certain uniformity was secured in all schools of similar grade through the prescription of curricula and courses of study, the supervision of all examinations, and the award of certificates and diplomas by the Ministry.

Hence the rest of the administrative organization consisted of a hierarchy of officials and councils with decreasing authority to carry out the laws, decrees, and regulations which issued from the Ministry. The academies, of which there were seventeen, were administrative areas established for educational purposes only. The chief administrative officer in each academy was the Rector of the university in its area, assisted by an academy council and inspectors and concerned mainly with the university and secondary and normal schools. Direct responsibility for primary education and normal schools was entrusted to the Prefect of each department, assisted

by a departmental council for education and academy and primary inspectors. In each commune responsibility for primary schools was entrusted to the mayor, assisted by a school committee (*commission scolaire*) and the local primary inspectors. All officials were directly responsible to the Ministry in Paris and none of the councils or committees had any right to initiative in the field of education, not even in schools that were built mainly with local funds.

The educational organization consisted of maternal schools (*écoles maternelles*) for children between the ages of two and six, primary schools (*écoles primaires élémentaires*) for pupils from six to fourteen, higher primary schools (*écoles primaires supérieures*) for selected pupils from twelve to sixteen, secondary schools (*lycées* and *collèges*), also for selected pupils from twelve to eighteen; and a great variety of trade, industrial, technical, and agricultural schools of various levels. At the top of the system were the seventeen universities and higher specialized schools at the post-secondary school level. Private schools existed but their establishment had to be approved by the Ministry; they had to meet the same standards as public schools, and be open to inspection. Elementary school teachers were trained in normal schools and secondary school teachers in the *École Normale Supérieure* or in the universities.

It is impossible within the compass of this article to discuss the features of these schools except to state that the French system and particularly the French concept of secondary education exercised a profound influence on education in many countries of the world. Its defects, however, began to be recognized during World War I, when a group of reformers, *Les Compagnons de l'Université Nouvelle*, initiated a movement for the common school system (*l'école unique*) with its demand for a common education for all at the elementary stage, increase of educational opportunities at the secondary stage, improvement of the standards of teacher preparation, and greater flexibility in the preparation of curricula and courses of study. In the period following World War I many of these proposals were put into effect. A common primary foundation was adopted, fees were abolished, and the number of scholarships

FRATERNITIES, PROFESSIONAL

were increased in secondary schools; all post-primary education began to be considered as a single unit; and in 1937 M. Jean Zay, the last Minister of Education of the Republic of France, initiated experiments with guidance (*classes d'orientation*) in a number of selected secondary schools.

After the collapse of France the opponents of the liberal movements in education, who were also in the main collaborationists with Nazi Germany, set aside all the reforms which had been achieved. Religious instruction was restored to the schools; equality of educational opportunity was abolished, and fees were reinstated in the secondary schools; the normal schools were closed as seed-beds of radicalism; physical training was given special attention; a youth organization somewhat on the Nazi model was created; and the last years of the primary schools were devoted to prevocational training, to be followed by vocational training, on the theory that work in itself is good for the masses and social stability can best be maintained by preventing mobility of any kind. The changes were based on an educational theory propounded by Marshal Pétain and General Weygand before the war broke out, with only one aspect missing—military training as the crown of the educational edifice. I.L.K.

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FRATERNITIES, PROFESSIONAL.

A professional *fraternity* (many times called a *sorority*, if for women) differs from a general fraternity in that its members are selected from people with the same professional or vocational interest, while the general fraternity selects its members at large from the student body. The professional fraternity should also be distinguished from the scholarship-honor, or leadership-honor fraternities, usually thought of as societies. In the professional fraternities, more emphasis is placed on technical and professional efficiency and less interest on social projects. Many of the professional fraternities promote scholarships, loan funds, and grants for fellowships in graduate schools.

The first professional fraternity was

founded in approximately 1819. Not much is known about how it came to be organized, but it was a Greek-letter fraternity in medicine at Transylvania University, Lexington, Kentucky, and was known as the Kappa Lambda Society of Aesculapius. Internal strife caused it to disband in 1835. At the present time there are professional fraternities in at least nine of the professions with well over 1,000 chapters in leading schools of the nation.²

Of the professional fraternities for men in the field of education, the following will serve as examples: Kappa Phi Kappa with 35 active chapters, 14 inactive chapters, 2 alumni chapters, and a membership of 10,073; Phi Delta Kappa with 50 campus chapters, 39 field chapters, and a total membership of 25,000; Phi Sigma Epsilon with 13 active chapters, no inactive chapters, and a membership of 2,800; Sigma Tau Gamma with 20 active chapters, 1 inactive chapter, and a membership of 5,000; Phi Lambda Chi with 3 active chapters, no inactive chapters, and a membership of 350; Zeta Sigma with 9 active chapters; and Phi Sigma Phi, a professional educational fraternity for men in teacher training institutions of college rank.¹

Kappa Delta Pi is an honor society in education for graduates and undergraduates of either sex. It has 122 active chapters and 3 alumni chapters.¹

Among professional education sororities Alpha Sigma Tau with 11 active chapters, 4 inactive chapters, 22 alumni chapters, and a membership of 2,800; Sigma Sigma Sigma with 32 active chapters, 13 inactive chapters, and a membership of 8,000; Delta Sigma Epsilon with 31 active chapters, 48 alumni chapters, and a total membership of 6,000; Alpha Sigma Alpha with 24 active chapters, 19 inactive chapters, 41 chartered alumni chapters, and a membership of 6,906; Pi Kappa Sigma with 28 active chapters, 11 inactive chapters, and a total membership of 7,500; Pi Delta Theta with 4 active, 5 inactive chapters, and a membership of 1,000; Theta Sigma Upsilon with 15 active chapters and a membership of 1,993; Kappa Delta Epsilon with 10 active chapters; and Pi Lambda Theta with 37 active chapters and 14 alumni chapters.¹ D.H.C. and A.R.A.

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FREE READING—See ENGLISH, TEACHING OF; READING, RECREATIONAL.

FRENCH, TEACHING OF—See MODERN FOREIGN LANGUAGES, TEACHING OF.

FREQUENCY DISTRIBUTION. After tests have been administered, measurements made, or observations taken, there are usually so many scores that they must be organized to facilitate interpretation. In a *frequency distribution* the scores are listed in order of size in one column, and the total numbers of individuals who received each score appear in a corresponding column to the right. These scores are often spread over so wide a range that it is usually convenient to group them into classes. Thus, all scores between 140 and 149 may be included within one class, while the scores between 130 and 139 are included in the next lower class, etc. A typical frequency distribution is reproduced below. The letter *N* refers to the total number of scores in the distribution.

THE INTELLIGENCE QUOTIENTS OF SIXTH GRADE CHILDREN AT THE HILL SCHOOL

Intelligence Quotient	Number of Children
140-149	1
130-139	2
120-129	9
110-119	21
100-109	34
90-99	20
80-89	9
70-79	3
60-69	1

N = 100

The class interval, the range between the lowest and the highest scores in a class (in the statistical and not the school meaning of the word), should be of a size suitable for the data. It is usually desirable to select the size of the class interval so that there are between ten and twenty groupings for the distribution. In distributions of educational and psychological data, class intervals of 5 and 10 are the most common. However, any size of class interval may be used according to the nature of the distribution. The one important rule governing the use of the class interval in a frequency distribution is that

all the class intervals in a given distribution must be equal. If the distribution of teachers' salaries is summarized in a table with a class interval of \$200 (e.g., \$1,000-1,199; \$1,200-1,399; etc.) that interval must be kept equal throughout the distribution. It would therefore be wrong to record the higher salaries in such a class as \$3,000-3,500. Occasionally, when the extreme scores are not known, it is permissible to use for the first or last step interval such a group as "Above \$5,000—". When this is done, however, one must be certain to keep in mind this deviation from the usual practice, lest it be forgotten when such measures as the arithmetic mean are computed; otherwise the computation of such measures will be incorrect to a serious degree.

H.S.-1

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FREQUENCY POLYGON—See GRAPHIC METHODS.

FREQUENCY STUDY. A *frequency study* is a research study involving the determination of the frequency of occurrence or use of subsumed items in specified areas for purposes of curriculum construction or revision. For example, one study measured the extent to which adults used various mathematical facts and processes. Frequency studies are generally based upon the assumption that learners should be taught the kinds of things that they are most likely to use rather than the kinds of things that they are least likely to use, since it is manifestly impossible for the curriculum to include everything. Frequency studies may involve analyses of textbooks, large bodies of literature, activities, vocabulary, errors, records and report forms, motion pictures, etc. The general value of such studies has been questioned by some who believe that they offer little educational guidance. The major criticism advanced is that they indicate current status rather than desired or optimum status; and that importance cannot be inferred directly from frequency. If the results of these analyses are taken directly as objectives of education, then the criticism may be valid. But if frequency studies are regarded as suggestive guides in

the formulation of educational objectives, they may have significant value. The technique of the frequency study requires skillful application of the principles of sampling from the point of view of both the sources to be sampled and the proper sampling of each source.

The *error count* is a form of *frequency study* which is concerned not with frequency of use, but with frequency of errors made in usage. Thus, a teacher may tabulate the frequency with which various words are misspelled in the free writing done by her students. The object of this error count is to help indicate those items which are apparently least well learned and consequently most in need of remedial instruction. Of course, the importance of the specific items, as determined on some other basis, must be taken into account, since items which are missed with equal frequency are not necessarily equally significant. Error studies are particularly helpful in the "usage" fields, such as language, spelling, arithmetic, etc., where they may prove of considerable diagnostic value. However, typical error studies are subject to several limitations, among which the following may be noted: (1) they do not reveal why the errors are made, (2) they do not indicate the relative importance of the errors made, (3) they give no suggestion as to the psychology of learning for correcting the errors made, (4) they may tend to distort the picture by focusing attention upon a relatively narrow aspect of the learner's underdevelopment. Nevertheless, when properly used, and when interpreted within a larger sound philosophical framework, the error study constitutes a very useful diagnostic medium in education.

H.G.

FRESH-AIR CLASSES—See OPEN AIR SCHOOL.

FRIENDS, EDUCATIONAL WORK OF THE SOCIETY OF. The educational work of the Society of Friends, or Quakers as they are commonly called, is as outstanding as their religious and philanthropic work. When, soon after the society was founded by George Fox in England, the Acts of Uniformity of 1662 brought persecution to all dissenters, the Friends kept open their meeting houses and established schools in defiance of the law. By 1671 there were fifteen Quaker

schools in operation. The Friends not only founded many types of schools of their own, but they attached themselves to every worthwhile educational development. In fact, Quaker influence gave impetus to most of the great English educational movements of the eighteenth and nineteenth centuries. The society provided free education to poor children of other creeds as well as to their own poor. It opened an adult school in Nottingham, which was the beginning of the great Quaker adult school movement, and inaugurated a plan for industrial education that involved teaching trades to all Quakers. The Lancastrian monitorial system, devised by Joseph Lancaster, who was himself a Quaker schoolmaster, owed its inception and early support to Friends. The society also opened Sunday schools, which were in reality mission schools for poor children, very few of whom were children of Friends. The widespread educational activities of the Society of Friends in England today include their support of secondary and higher schools, teacher-training schools, adult schools for men and women, mission schools in various lands, and great numbers of day and Sunday schools.

When the Quakers settled in America they brought with them a firm belief in the necessity of elementary education and of the mastery of a trade for all children, rich and poor. Since the Quaker religion made no provision for ministers with intellectual training beyond that of laymen, they established no colleges until the middle of the nineteenth century. Primary and secondary education were provided for amply by them, however, and it is in these fields that the Friends have had the greatest influence. In colonial days they established day schools—usually in close proximity to their meeting houses and often providing the only educational opportunity of the neighborhood—which were attended by the boys and girls of the locality. The most noted of the colonial schools was the Friends Public School of Philadelphia, chartered by William Penn in 1701. The central school, now the William Penn Charter School, had branches in various sections of the city, some for boys, some for girls; some free, and some charging tuition. The Yearly Meetings, the only ecclesiastical governing body of the Friends, were instrumental in establishing such schools in each of their regional juris-

FROEBEL, FRIEDRICH WILHELM

dictions. After the Revolution, they opened boarding schools that have become well known for their excellent educational standards.

The Friends in America have been as influential in backing educational movements as have those in England. It was through the American Friends that Joseph Lancaster came to America and introduced his monitorial system in the schools of Philadelphia and in other localities. In New York City the Friends started a free school for girls whose parents belonged to no religious denomination; they also supported the organization of the Free School Society, later the Public School Society, which paved the way for a free public school system in New York City. About 1850 the Quakers began to establish colleges. Haverford School became Haverford College, and Swarthmore and Bryn Mawr Colleges were opened—all near Philadelphia. The boarding school in North Carolina became Guilford College, and the one in Indiana, Earlham College. Other colleges were established in the West: Penn College in Iowa, Friends University in Kansas, Pacific College in Oregon, and Whittier College in California. Friends—particularly Moses Brown, Ezra Cornell, and John Hopkins—have been active in founding other institutions of higher education.

The educational principles of the Friends have always emphasized thoroughness in the fundamentals, honest and effective scholarship, and a severe discipline, leading to honest and simple living. Religious instruction in their schools has been along lines for which the Quakers are noted, namely, emphasis on high moral conduct, on peace and tolerance, and on practical philanthropy.

E.H.W.

FROEBEL, FRIEDRICH WILHELM (1782-1852). Froebel was born in the mountains of Thuringia in southern Germany. Froebel's interest in teaching was first aroused when in 1799, at the age of seventeen, he visited his brother who was studying medicine at the University of Jena. There he was greatly impressed with the intellectual activity centering about that institution and he awakened to an interest in teaching that never left him. He was invited to teach drawing in a Pestalozzian school at Frankfort, and when three years later he was engaged as a private

tutor to three children he spent most of time with his young charges at Pestalozzian institute at Yverdon, where he studied methods of the great reformer and became one of his most enthusiastic disciples.

At the age of twenty-four, after a careful study of the works of Rousseau, Basedow, Pestalozzi, Froebel opened an experimental school at Keilhau in his native Thuringia which was a pedagogical success but ended in financial failure. During the next few years he taught in various schools in Switzerland and in 1826 he published his great work, *Education of Man*, which contains the exposition of his educational philosophy.

The description of the School of Mother's Knee in the writings of Comenius confirmed his belief that the earliest years of childhood were the most important in education. In 1837 he opened his School for Little Children, the first kindergarten, in the mountain village of Blankenburg. The remainder of his life was spent in developing games, plays, and songs for the kindergarten, founding kindergartens, training kindergarten teachers, and elaborating on his methods.

The educational leaders of Germany at first opposed the kindergarten idea, but certain women, particularly Baroness Dülrow-Wallhausen, eventually won recognition for the kindergarten in Froebel's own land after his death. In the United States the first kindergarten was established by Mrs. Carl Schurz for German-speaking children in Watertown, Wisconsin. The first English-speaking kindergarten was started in Boston by Elizabeth Peabody, sister-in-law of Horace Mann; the first public kindergarten was opened by Susan Blow in St. Louis.

Froebelian Aims. According to Froebel the aim of education is the development of the inborn capacities and powers of the child. However, his conception of original nature was different from the pure naturalism of Rousseau. Froebel was the first real educational evolutionist. He believed that education is an essential element in cosmic evolution. Education to him was the process by which the race and the individual evolve to ever higher levels to the end of time.

Froebel insisted that there is one underlying power in the universe, the Absolute, manifesting itself as force in nature and as consciousness in man—an original, active,

ergizing, creative, intelligent, self-conscious source of all being. Creation is a continuous process of productive activity, and is the source of all things, including the child's nature, in this universal power which we call God. The forming crystal, the growing tree, the developing child—all reflect God's plan of creation, but under different manifestations. Therefore, any study of changes in the evolution of nature will throw light upon the nature of the development of man. All that man is ever to be lies hidden, however slightly revealed, in the nature of the child. Froebel looked upon man as a "human plant." The purpose of the educator is to control the growth of the child into a man, just as the purpose of the gardener is to control the growth of a plant to its full flowering and fruition. The aim of the teacher is to see to it that the development of the child is in accord with the original and logical course of human development. Failure in education consists of neglecting or preventing the development of certain sides of the child's nature, or of causing "the distortion of originally good human powers and tendencies by arbitrary and willful interference." If the child's nature has been marred, it must be redirected into the original course of development; if the child displays activities contrary to the true principle of growth, these must be recognized and corrected in order to keep the development progressing along the right lines. Thus, according to Froebel, education must be a controlled development by which the individual comes into realization of the life of the all-encompassing unity of which he is but a unit, a development by which his life broadens until it has related itself to nature, until it enters sympathetically into all the activities of society, until it enters into the achievements of the race and the aspirations of humanity. Education is but the realization in the individual of the evolutionary process at its highest stage. The work of the teacher is to bring about this unified evolutionary development.

Froebelian Method. Froebel considered education a process of creative self-development, which comes from what he called an "inner unfolding," and is brought about by means of the pupil's spontaneous self-activity. Froebel based his whole methodology on the principle of self-activity. He insisted that

only when a child is creating actively, only when he is "making the inner outer" as he put it, is he really developing. Like Pestalozzi, Froebel contended that the child must learn by doing, but where Pestalozzi depends upon natural objects from without to stimulate impressions, Froebel endeavors to draw out of the child, by means of self-prompted activities, every potentiality of his nature. Froebel did not believe that activities should result from outer stimulation or from an instinct to emulate but that they should come as a process of natural unfolding.

According to Froebel, educative activity is to take place only when the child is ready for it, when he has "certain felt need" for it; this readiness is a condition of his inner nature and not of curiosity, interest, or past experience. The teacher must see to it that the child has the opportunity to engage in the activity when the "budding point" is reached, when there is a felt need.

Froebel was the first educational thinker to perceive the significance of socialization as a basic principle of teaching. He maintained that the inner nature of the child impels him to co-operative activity with others. This was part of Froebel's central doctrine of unity in creative evolution. The "morning circle" in his kindergarten, where the teachers and all the children took the circle and joined hands for song, prayer, and play, was a method of instilling a unity of feeling and purpose into the group. It was the duty of the school to make possible the expression of cooperative social activity so that the children would develop along lines of better forms of social living and thus play a part in the creative evolution of a better social order.

Froebelian Gift. Froebel's curriculum was an activity curriculum. His content was made up of all types of self-expression activities. Language was considered to be the earliest and most fundamental activity, which must accompany all other educational activities. He insisted that there must be a simultaneous development of language, song, gesture, and constructive activity. He included drawing and rhythm among the activities of the school, for he believed these to be nearly as essential to expression as language. Handwork was looked upon as an opportunity for expression, an aid to further impressions, a training of the mind through the hand. Na-

FUNCTIONAL DISORDER

ture study, instead of being a study of classified specimens, became the study of living and growing plants and animals.

Beyond everything else Froebel emphasized play as the most valuable form of self-expression. He was interested in its social and intellectual implications rather than in its health values. He developed and organized his play materials gradually and systematically, designating them by the terms "gifts" and "occupations." They were manufactured and sold especially for school purposes, and included, among other things, balls, spheres, cubes, cylinders, small blocks, sticks, and paper for folding—all designed to stimulate motor expression on the part of the child. He also developed many types of co-operative play and group games, minutely and systematically setting forth the songs and movements involved in each.

Even if we disregard Froebel's symbolism—that a spiritual meaning is intuitively grasped by the child from every "gift" and "occupation"—we must admit that he enriched our curriculum, especially at the early elementary level, with a vast amount of valuable educational material. E.H.W.

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FUNCTIONAL DISORDER. The term *functional disorder* is commonly applied to an illness or maladjustment which has no organic basis, e.g., the absence of lesions or toxic damage, but is accounted for by faulty mental habits. This distinction, however, is being challenged by certain physicians who claim that it is fictitious and artificial, and that structure and function really are inseparable.

According to the older and more popular usage of the term, cases of headaches, paralyses, and sensory defects, where no structural damage is involved, would be classified as functional. These may include headaches due to emotional excitement or conflict; paralyses, such as those cured at shrines through emotional shock; and hysterical blindness and deafness. Such functional disorders increase

notably in time of war and during periods of economic depression when individuals are confronted with what they regard as intolerable situations and are unable to adjust normally to them. In all such instances the affliction is very real to the victim, and he cannot be accused of malingering. In the treatment of such individuals it is absolutely essential that the patient have faith in the therapeutic measures adopted. Generally, some sort of shock is given, and in most cases the "cure" is permanent. Although it seems rather paradoxical, those who have been cured from functional disorders rarely show any gratitude for their recovery. The following cases illustrate the manner in which functional disorders occur, as well as the characteristic type of treatment employed.

During an argument at the breakfast table a man threw a cup of hot coffee in his wife's face, and although no damage was done to her eyes, she insisted that she was blind. She was told by her physician that to restore her sight a minor operation would be necessary, and that severe burning sensations would be involved. A harmless but irritating solution was used, and she was told to open her eyes slowly and she would see. Her sight was restored by the burning sensation acting as the necessary mild shock, combined with her faith in the treatment.

A thirteen-year-old girl in a foster home developed functional deafness as the result of constant nagging and scoldings from her foster parents, and the tales of hardship and distress told by her real mother when she visited her. The deafness served to shut out these unpleasant experiences, and ceased when an adjustment was made.

The prevention of functional disorders depends upon the ability of the individual to face unpleasant situations squarely, and, wherever possible, upon removing or ameliorating sources of conflict in the environment. F.K.M.

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FUNCTIONAL GRAMMAR—See ENGLISH, TEACHING OF; LANGUAGE ARTS.

FUNCTIONAL MATHEMATICS — See MATHEMATICS, TEACHING OF.

FUNCTIONAL PSYCHOLOGY — See PSYCHOLOGY, SCHOOLS OF.

FUNDAMENTAL SKILLS — See MINIMUM ESSENTIALS.

FUNDS, SCHOOL — See FINANCE, SCHOOL.

FURNITURE, SCHOOL. It is now generally agreed that classroom furniture should be movable. This idea is in keeping with the trend from regimentation to individual freedom and self-direction; from stabilization to flexibility of arrangement; and from formality of class divisions to adaptability of grouping to meet specific needs.

The present tendency is to make the school as homelike and as comfortable as possible, and to encourage pupils to exercise initiative and individuality in the arrangement of furniture and the decoration of the schoolroom in keeping with their immediate programs. Today chairs and tables supplant the traditional school desk in most primary rooms, and a combination of tables, chairs, and adjustable desks is found in the intermediate grades of many modern schools. The trend toward flexibility of seating arrangement is extending into the junior and senior high schools. Tablet arm chairs and sometimes tables and chairs are being provided to replace the rigid fastened-to-the-floor desk of a few decades ago.

In the selection of desks and chairs, the goal is to afford as complete physical comfort as possible, keeping in mind the activities in connection with which the furniture will be used. In the selection of furniture, attention is given also to economy of equipment, economy of maintenance (including janitorial service), efficiency in administration, relationship to modern teaching methods, stimulation of study and learning conditions, conservation of vision and health, and opportunity for achieving the goals of modern school discipline. (See SEATING.) L.E.M. and M.F.S.

FUSION. *Fusion* refers to the bringing together of essential subject matter from different subjects or broad fields so that they

lose their original identity through a new form of organization. It is not a curriculum, but a method of selecting and organizing subject matter in broad fields, core curricula (*qq.v.*), or other forms of subjects curricula. There is no fusion in the experience curriculum (*q.v.*) since there is no prior body of essential subject matter which has to be reorganized. Both fusion and correlation (*q.v.*) stress basic subject matter. They differ in the degree to which they eliminate, reevaluate, and reorganize it. Fusion results in a more thorough reorganization which is achieved by regrouping around a large problem, generalization or theme. This transfers the center of relationship and offers a criterion by which to eliminate old and introduce new material. The original subject matter which contributes little to the development of the new center or organization is now considered non-essential. There is no fused curriculum, but there are fused courses. Parts of such subjects as history, geography, civics, economics, and sociology are organized around themes to become social studies. Parts of the subjects of biology, physics, chemistry, zoology, and physiology are combined into one area known as science studies. Most broad courses, such as general mathematics or general science, most survey courses, such as humanities or family life, and most unified studies and core courses are examples of fusion.

Fusion is frequently confused with integration (*q.v.*). There is fusion of subject matter but there is integration of experience or personality. Fusion is what an individual or group does to subject matter to make it more available for teaching and learning by someone else. Integration is the process by which an individual organizes his experiences into functional unity. Fusing the subject matter may be integrating for the adults who do it, but the effect may be quite disintegrating to the pupils who must learn it.

Every proposal for the reorganization of the curriculum within the subject outlook and framework utilizes fusion as a means to achieving its ends. Proposals for reorganization which stress the improvement of living of individuals and groups rarely utilize fusion since living is a qualitative self-motivated functional unity. Examples of fusion are so numerous and commonplace that they are generally accepted, yet are frequently un-

FUSION

recognized. Courses of study from city and state school systems are one of the best illustrative sources. (See CURRICULUM.) L.T.H.

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G

GAMES, EDUCATIONAL. A game may be considered educational if its processes or outcomes contribute in some way to the educational growth of the individual. Toys and games which are participated in mainly for the purpose of recreation may be high in educational value, but often the term "educational games" refers to those schemes or devices used as a part of the regular program of school activities to furnish pupils with practice in the mastery or retention of certain facts or skills.

Most so-called educational games or drill-devices are variations of other games commonly played by children, with the content modified so that the child has to use curricular materials. Thus the primary grades child may try to toss a beanbag into one of the many holes cut into a piece of beaverboard. Each hole has a different score value and the children practice their addition combinations by adding their scores. Similarly there are hurdle races, baseball and basket ball games, tag, etc., which have been adapted from various common games.

The major value of most of these educational games is that they afford a pleasant means of practice on materials to be learned or retained. In the mastery of the fundamental combinations in arithmetic, the child needs a great deal of practice if these combinations are to be reduced to instantaneous, automatic associations which have permanence. These games, while furnishing the child with some amusement or fun, provide a means by which the child can practice the combinations with a degree of interest and persistence not commonly found in more traditional drill periods.

Aside from those who object to any form of "sugar-coating" in education, there are other educators who have criticized the use of educational games on different grounds. While they concede that these games may

have recreational value and offer a convenient means of relaxation from the tension or boredom of more traditional procedures, they believe that their educational values may become so incidental as to be lost sight of completely. On the other hand, it has been said that some teachers stress the educational values to so great an extent that these are called games as an expression of hope rather than as a description of children's reaction to them. So long as children have to do a division example, it makes little difference whether the teacher calls it an arithmetic practice period or a water polo game. Still others object to the ease with which teachers can resort to educational games as a means of evading their responsibility for finding intrinsic sources of motivation. It is significant, too, that educational games rarely provide for practice in the setting in which the materials will be used; the pupil in a language class playing "Who Is It?" says "Yes, it was I," and "No, it wasn't I," with little attention to the use of this expression in ordinary speech.

Since most games furnish but little repetition on specific items they are to be selected with care where drill is needed. If a game is to be of value in furnishing drill on specified items, it is necessary that the items on which the individual needs drill occur frequently enough in the game to furnish the repetition necessary to insure automatic response.

Educational games are more common in the elementary than in secondary schools, and more frequent in factual and skill subjects than in appreciational or interpretative subjects. How effective they will be depends on the teacher's skill in combining the appeal of a game with the educational value of offering opportunities for practicing a skill or an association needed by the individual pupils. (See DRILL; FROEBEL; PLAY; RECREATION; REVIEW.)

W.V.N.

GANG. A gang is a group of "teen age" boys which is usually formed spontaneously but is later united through conflict. It is characterized by the following types of behavior: meeting face to face, milling, movement through space as a unit, conflict, and planning. The result of this collective behavior is the development of tradition, unreflective internal structure, esprit de corps, solidarity morale, group awareness, and attachment to a local territory.

Gangs tend to become delinquent under conditions of community disorganization, and especially in border regions between well-established cultural groups. Membership of gangs is primarily determined by the mere fact of living in a particular area rather than by any innate characteristics of the individual boy. Emotionally unstable and intellectually incapable persons born into a socially poor environment most frequently constitute the membership of delinquent gangs. (See *JUVENILE DELINQUENTS*.) M.S.Q.

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GARY PLAN. The plan of education instituted in the public schools of Gary, Indiana, in 1908 by William Wirt, then superintendent of schools, has been widely publicized, mainly for its unique plan of organization known as the Platoon Plan (*q.v.*), which provides as nearly as possible for the complete utilization of the school plant at all hours of the school day. Less conspicuous but equally important features of the Gary Plan, or the Wirt Plan as it might more appropriately have been called, include (1) an arrangement designed to improve articulation among the various levels of education within a local school system by housing all grades from kindergarten through high school in the same building under a single administrative principal; (2) a plan providing for opportunities in recreation, literature, and the arts for both children and adults by providing large playgrounds or parks adjacent to school buildings, as well as swimming pools, branch

public libraries, and art galleries in the public school buildings; (3) a plan for the year-round use of school buildings day and evenings, including Saturdays, for both children and adults; and (4) a plan of education known as the work-study-play plan (see *Platoon Plan*), which provides for the all-round development of children through a well-balanced and diversified curriculum.

W.V.N.

GENERAL ART—See ART EDUCATION.

GENERAL EDUCATION BOARD — See FOUNDATIONS, PHILANTHROPIC.

GENERAL INDUSTRIAL SCHOOL.

In the technical sense, a general industrial school is that form of an all-day vocational industrial school in which students get instruction in elements of more than one trade—usually two related trades, such as machine shop practice and auto mechanics or carpentry and patternmaking.

To receive federal aid under the Smith-Hughes or George-Deen acts, such a school may be established in cities having a population of 25,000 or less, and may provide as little as 25 hours of instruction per week, instead of the 30 hours per week required as a minimum for unit trade schools. (See *INDUSTRIAL ARTS EDUCATION*; *UNIT TRADE SCHOOL*.) F.T.S.

GENERAL LANGUAGE. The 1934 report of the U. S. Office of Education listed 122 schools and 11,979 pupils enrolled in General Language, all but 678 pupils in the 7th and 8th grades, two-thirds in half-year courses. Taylor and Tharp found the course taught in 24 states in 1937, offered usually in the eighth grade, with a high degree of satisfaction expressed in a questionnaire answered by those who had taught the course.

The course takes several forms and combinations, and the textbook materials in print provide for these variations. It may be:

I. A study of the nature and origins of language as a form of communication, particularly of English in its formation and growth and enrichment by other languages and language forms.

II. A study of the cultures and civilizations of several foreign nations who have contributed to the American scene, with only enough language and music to provide emotional background and local color.

III. A series of sample lessons, ranging from three weeks to a semester, in the principal foreign languages taught in the schools to provide exploratory experiences in the actual language for prognosis of future study success; for orientation into the language of greatest interest and need; for a series of comparative language experiences to throw the mother tongue into relief and provide prospective to its structure; to provide basic phonetic principles to aid in reasonably accurate pronunciation of foreign names and words by announcers, singers, and the general public.

There are several books in print that attempt only Type I, although it has been said that such course work belongs properly to the English department, if teachers were adequately equipped and convinced of the validity of such activities. There have been several books published in English for Type II but in the main the "Foreign Cultures" course uses a wide range of library sources and audiovisual materials. By far the greatest number of books published for school use make some combination of all three types, usually Type I taking part of the book and the remaining part given to Types II and III in combination (that is, brief civilization sketches included in the exploratory lessons in each language). Although the work of Type II is essentially social science, it has been said that well trained foreign languages teachers are best equipped to direct the work and certainly they are the ones who must teach Type III.

Although the purpose of prognosis has been somewhat discredited (by Kaulfers and others), the value persists under proper circumstances, since there is ample evidence that adequate measurement of a sample experience long enough to reflect the activity in question is the most reliable prediction to success in a prolonged experience in the same activity, certainly better than measurements of general intelligence or of kindred activities. It is another question whether the returns justify the expense for this purpose other than to avoid some, but not all, loss and

frustration from course failures. The validity of the orientation-guidance feature is not questioned, but there is a grave difficulty in securing teachers broadly enough equipped to teach valid samplings of several languages, impartial enough not to proselyte for their favorite language, and clever enough to keep pupils from a now-I-know-it attitude or from feeling that a smattering of orientation is a substitute for real skills. Until such teachers can be trained, wise administrators should staff these courses by committees or by adjustment of teacher direction to avoid the dangers.

There is little doubt that the general language course is due to be greatly extended, especially in the 8th, 9th, and even 10th grades of high school. The pattern of "general education" is being set, the influence of the core curriculum is levelling subject-matter boundaries, and even the various foreign languages, highly competitive among themselves (especially modern versus ancient) are due to pool their interests in the early stages in order to provide longer continuance to the fewer pupils who start study to proceed later to established skills. J.B.T.

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GENERAL MATHEMATICS — See MATHEMATICS, TEACHING OF.

GENERAL SCIENCE — See SCIENCE, TEACHING OF.

GENERAL SHOP. A general industrial arts shop, often called *general shop*, and sometimes, *laboratory of industries*, is a school shop in which several kinds of industrial arts education, such as work in wood, metal, electricity, and printing are carried on simultaneously under the direction of one teacher. In a general shop the equipment is usually grouped according to kind, and so

arranged that the instructor can readily supervise the whole shop. The general shop often includes a teacher's office, stockroom, finishing room, and a planning center in addition to the areas given over to various forms of shop instruction.

Since the general industrial arts shop does not emphasize vocational aspects, the general industrial arts shop must not be confused with the general industrial school, nor with general vocation education. (See GENERAL INDUSTRIAL SCHOOL and VOCATIONAL EDUCATION.)

F.T.S.

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See also references under INDUSTRIAL ARTS.

GENIUS—See GIFTED CHILDREN, EDUCATION OF.

GENTILE REFORM—See ITALY, EDUCATION IN.

GEOGRAPHY, TEACHING OF. In the past *geography* was in turn conceived as an explorational, descriptive, and utilitarian field. In the nineteenth century it developed an environmental point of view of the earth as related to humanity. Geography is now defined as an interpretive study or science of the interrelationships existing between the elements of the natural environment and the distribution and activities of mankind. Included among the natural elements are such factors as climate, topography, and various resources. Related human activities are economic responses, such as agricultural, extractive, manufacturing, and commercial enterprise; social responses, such as forms and distributions of living and culture; and political responses, including governmental arrangements. Geography thus draws upon and links the natural sciences, such as geology, astronomy, and biology—of which it is the mother science—and the social sciences, including anthropology, history, economics, and others.

Physical geography stresses the study of the earth's crust, the interrelations with it of the earth's atmosphere and water, and the consequent effects on human life. *Human geography* focuses attention on man-made features of the earth, dealing with man's ac-

tive modification of the earth's surface or his passive adaptation in failing to settle in some regions because of superior natural forces. Treating more specifically the livelihood of mankind and the geographical, historical, and political factors affecting its past and future course, *economic geography* is concerned with man's development of certain patterns in the production of the commercial commodities of the farm, ranch, forest, sea, and factory, and in their distribution, exchange, and consumption. One phase, *industrial geography*, describes the weight of natural and human factors in determining the location and development of the extractive and manufacturing industries. Another phase, *commercial geography*, studies the practice of exchange of surplus industrial commodities between regions, arising from differences in the character of peoples, in the types of resources available to them, and in their stages of industrial development. Consideration of available means of communication and world trade routes is included.

The emerging method of treatment of the geography of the world is the synthetic study of regions. The earth's surface is thought of as a mosaic of distinct regional landscapes, each representing a peculiar combination of natural and man-made features. The field of geography, under this concept, is the comparative study of the earth's regions, the definition of their limits, and the description of their peculiar "personality" characteristics and their interrelationships. The political and the natural regions, much used as bases of organization, are yielding to the human-use region because its basis is the uniformity of use while their unity is often either artificial or non-geographical. The corn region and the cotton belt are human use regions; the interior plains region of the United States, which includes the corn and cotton belt regions is itself a natural region. Study of human use or occupancy treats the relationship between man and his environment as activated primarily by man in his striving to mould nature's surfaces and products so as to fulfill his needs. Thus human geography attempts to furnish a much sought criterion as to the nature of geographical facts. It checks the excursion into the endless facts of highly specialized natural sciences that characterizes the natural regions approach, and

GEOGRAPHY, TEACHING OF

substitutes a definite, scientific field including the facts of human use of an area and its products, the reasons for such use, and the likelihood of man's continued use of it in that manner.

From an emphasis on sailor geography and factual geography of the natural environment, teaching has gradually shifted to a consideration of the modes of human life on the earth. Its general aim is to facilitate the adjustment of the future citizen to adequate social living by showing how and where men live, what they do, and why they live and work as they do. Associated with this aim is the development of a sympathetic understanding of other peoples' modes of life and a realization not only of man's dependence on earth conditions but also of the interdependence of peoples. With a view to the future, the teaching of geography also inculcates the desire for the better ultimate use of land and other natural resources. Among the values commonly ascribed to the study of geography are its training in the ability to obtain information by gaining familiarity with geographic tools; its training in observation, thinking, and proper habits of study; and its development of abiding interests and facility in following current affairs.

A variety of methods of teaching has been employed, which, though considered in turn, are not mutually exclusive. In the pre-geography stages, in home geography study, and in later study the observational method of getting geographical information at first hand is valuable. The imaginary journey method, though useful for lower grades in the study of modes of living and for upper grades as a method of review, is too sketchy for a full consideration of given regional units. The type method yields an intensive and richly detailed study of a people, industry, or region, and results in establishing a basis of future comparison. Though the topical method of considering a country or a continent in sequential serial order of topics such as location, size, shape, physical features, etc. has not recently been in good favor for presentation, it may be used advantageously within a problem or as a means of review. The use of stimulating problems, recognized by the pupils as challenges worth meeting and possible of solution on their level, characterizes

the problem method. Study of the problem, when it emerges from child experiences and yields new and valuable geographic information and insights, contributes strongly to an understanding of geographical relationships and principles. The same is true of the project and unit methods of teaching in which the field of research and experiencing by children is generally larger than in the problem study and is more likely to include other subject areas. Common to all the methods described are lesson types involving the inductive or deductive procedure, occasions for drill and review, class excursions, and devices for increased vitalization of learning, such as still and motion pictures, charts, maps, models, and various geographic apparatus.

Certain trends in geography teaching have been discernible. Study of local geography and psychological reorganization of material have been emphasized. The influence of nationally circulated textbooks has been weakened. Concerning the scope, basis of sequence, and grade placement of content there is not yet complete unanimity. An almost general preference for a one-cycle organization is evident. This, briefly, would include a study of a few representative peoples in contiguous regions extending from equator to poles, the continents considered in order of social significance and ease of comprehension, and a series of world views of our own and other countries in their commercial and political relations. The trend toward fusion, integration, or correlation of geography with other social studies and the spread of the activities program have emphasized the functional learning of geographical facts for desirable social use. The advocates of merging geography into the social science course stress uncompartmentalized units of experience as being more functional and more characteristic of learning in later life. The proponents of geography as a separate subject claim that social science courses omit much of natural science and fail to retain the necessary sequence in history. Others describe a desirable social science course as a skillfully wrought mosaic in which each of the components in turn becomes the core of a unit, with the others contributory. In social science, as in geography, the problems of scope, sequence, and grade placement have not been finally decided. (See MAPS, USE OF.) J.H.S.

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GEOLOGY, TEACHING OF—See SCIENCE, TEACHING OF.

GEOMETRY, TEACHING OF — See MATHEMATICS, TEACHING OF.

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GEORGE-REED ACT — See FEDERAL AID.

GERMAN, TEACHING OF—See MODERN FOREIGN LANGUAGES, TEACHING OF.

GERMANY, EDUCATION IN. Under the Weimar Republic (1918-1933). The Weimar Republic was confronted with the problem of democratizing an educational system that had been built on authoritarian foundations in the spirit of devotion to the *Kaiser* and *Reich*. The schools had been administered by the states; local school inspection of the elementary school was left, in most part, to the clergy. The division into elementary, intermediate, and secondary (academic) schools with preparatory classes which alone gave access to the institutions of higher learning, followed class lines. Method and curriculum were most rigid on the elementary, less rigid on the secondary, and actually free on the university level. Political programs opposed to the established education; a strong school reform movement under idealistic slogans (*freedom, community, nation*), somewhat parallel to the bourgeois youth movement; and different types of experimental schools, grew steadily, but exerted little decisive influence before the first World War, and only a little more towards its end.

In the Republic all these new movements as well as the established traditions were backed up by various political parties, each violently opposed to the others, none strong enough to take a powerful lead. The conservative groups still advocated nationalism and military discipline; the liberal middle classes and the social democratic workers, freedom of individual development; the Catholic center, education in the denominational spirit; and the parties of the extreme left, later to crystallize into the Communist Party, stood for an education for class war.

As a way out of this ideological conflict an educational philosophy was offered by the disciples of Wilhelm Dilthey, prominent among whom were men like Eduard Spranger and Theodor Litt, and others close to them like the Prussian minister C. H. Becker, and Hans Richert, the author of the Prussian secondary school reform. They postulated a philosophy based on autonomous universal values as represented in the different aspects of objective culture. In the educational process each individual reconstructs these values according to his personal "structure". But the claim that this was the German educational philosophy was not accepted beyond the stratum of the cultured bourgeoisie which was powerful in the administration.

An official compromise was finally reached by the three parties of the Weimar coalition in the constitution. It reserved for the Reich the supreme right of legislation *only* with respect to the religious character of the schools. In spite of several attempts the law was never passed. Moreover, the constitution contained only certain general principles: the school systems were to offer equal opportunity to all; civic instruction and manual work was to be a part of every curriculum; there was to be a common elementary school for all denominations; preparatory classes (*Vorschulen*) to the secondary schools had to be abolished; teacher training was to be made academic; local school inspection was to be taken out of the hands of the clergy and to become the responsibility of civic officials. Only one *Reichs-law* was passed (in 1920, amended 1925) providing that all children except the very ablest should attend a common school (*Grundschule*) during the first four years of their school career.

Within these constitutional limitations, au-

onomy remained in the hands of the states. As a result, the various school systems tended to reflect the political make-up of each state. In Prussia, for instance, the national-liberal ideals of Spranger—the integration of the curriculum around the homeland principle, and the introduction of the activity program, especially in the elementary school—prevailed in the school reform of 1923-24. The same principles were followed in the secondary school, and the traditional forms of *Gymnasium*, *Realgymnasium*, *Oberrealschule*, to which the new form of the *Deutsche Oberschule* with its concentration around German culture was added, were now interpreted as cultural types which were to be attended by students of the corresponding human types. Finally, a special academy for teachers was established, instead of a university department, which the teachers wanted. This was justified as being in line with the philosophy mentioned above, which classed the teacher as a special social type purportedly different from the university theoretician. More radical states like Thuringia, Saxony, Braunschweig, and Hamburg went further in the democratization of administration, in the organization of a unified school system, and in the reconstruction of curriculum and methods. In these states even the universities were reformed and their function extended to include teacher training. Bavaria, on the other hand, quickly became the most conservative state.

Alongside the official school reform there developed an unofficial one which strongly influenced it. This movement was due partly to the stimulus of the new political freedom, and partly to a continuation of pre-war school reform. It started with the community schools of Hamburg on the basis of romantic socialism, became more communistic in some experiments in public schools of Berlin, Northern and Central Germany, and the Rhineland, and finally turned democratic in some elementary and secondary public schools in Berlin, Hamburg, Dresden, Leipzig, and Magdeburg.

The depression led to new problems. On the one hand a contraction of educational opportunities became unavoidable and had destructive consequences for students and young teachers. On the other hand, strong political support was given to the idea of a ninth obligatory school year of a somewhat

vocational character and to labor camps as a cure for the economic and moral dangers of unemployment. But the republic fighting for its very existence had no longer the strength nor the calm to solve these problems.

Under the National Socialist Regime (1933-). When Hitler seized power, the Nazi theory of education had already been elaborated by men like Ernst Krieck and Alfred Baeumler. Based on the emotionalism of the expropriated lower middle classes, the first group of Hitler supporters, it violently opposed the "empty" humanism which formed the credo of the cultured and also underlay the longings of the working masses. The cultural value of the autonomous personality was replaced by the political: the soldier, the hero who lives, or better still, dies for the greater power and glory of the "superior" German race, and for its incarnation, the *Fuehrer*. Education must therefore give youth the consciousness of this mission and the vigor to fulfil it.

Educational authority, like all other authority, was vested in the *Fuehrer* alone. It is delegated to the Education Minister of the *Reich*, to the Youth Leader, and finally down to the school principal and the last group leader. It means *Gleichschaltung* of the states with the *Reich*, of the churches with the state, of the state finally with the party, of all former parties with the party, of all youth organizations with the Hitler Youth. (*Gleichschaltung*: officially—political coordination, actually a complete submersion in which the agencies to be "coordinated" lose their identity).

The democratic principles of school organization are replaced by the leadership principle with its ultimate aim, the selection of a Nazi elite. The process of educational nazification begins before birth with the marriage license for "racially pure" (*erbgesund*) parents, continues in the homes for illegitimate "state children", in the three grades of the youth organization (*Pimpfe*, 4-10, *Jungvolk* 10-14, *Hitlerjugend* 14-18, and for girls the *Jungmaedel* 10-14, *Bund deutscher Maedel* 14-18), the *Landjahr* (work and life on farms for elementary school children), the Labor Service (compulsory since 1935), the military service, the elite schools (*National-politische Anstalten*) under state administration for selected secondary students, the *Hitlerschulen*

for essentially the same purpose under Hitler Youth administration, and the *Ordensburgen* for the training of the party élite of maturer age—25 years. The traditional schools fulfil a more auxiliary function. They are subject to interruption at any time for party activities. The secondary schools were cut from nine to eight years mainly to make way for the compulsory labor service. The prevailing type of secondary school is now the *Oberschule*. It provides two fields of specialization in the last three years, either language or science. For girls (whose "natural" vocation is to be mothers of soldiers) however, the second specialization is home economics. Of the other secondary schools only the humanistic *Gymnasium* still exists, but it is open to very few. The total number of students in the universities decreased from 95,807 in 1930-31 to 65,266 in 1937-38, of whom the percentage of women decreased from 18.5 to 12.5. The older and more famous universities now admit students on the basis of a selective quota. The various institutions for teacher training, once the pride of the Republic, were first transformed into *Hochschulen fuer Lehrerbildung* with the ideal of *Landverbundenheit*. The first year of the course of study became a year of work required of all candidates regardless of the field of specialization, something utterly new in German teacher training. But by 1941 academic teacher training was completely abandoned and reduced again to the status of the authoritarian seminar. The teachers gagged in the National Socialist *Lehrerbund* (membership is compulsory) can no longer oppose the frustration of their hundred year old aspirations for an academic teacher training.

Indoctrination and authoritarian discipline have replaced the activity school and its training for democracy. Absolute subordination to the supreme wisdom of the leaders is inculcated and, according to available sources, achieved.

The curriculum stresses physical prowess, history interpreted as Nazi mythology, geography as geopolitics, biology mainly as a study of heredity to justify the necessity for "racial purity", and home economics for women. The entire work of the schools is directed toward ultimate application in war. This is the new integration.

F.K.

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GESTALT PSYCHOLOGY—See PSYCHOLOGY, SCHOOLS OF.

GIFTED CHILDREN, EDUCATION OF. Gifted children are generally defined as those who are as superior intellectually to the ordinary run of children as the feeble-minded are intellectually inferior to the average. The IQ is used as an indicator of intellectual ability and, for gifted children, varies from approximately 130 to 135 and above. In organizing classes for gifted children, administrators often find it necessary to include some children with IQ's of 125, 120, or sometimes even lower. When a substantial number of pupils with IQ's under 120 are admitted to a special class, however, the group is rarely referred to as "gifted"; rather, some term implying lesser ability is used, such as "bright pupils" or "rapid learners".

The term "gifted" has supplanted such terms as "precocious," "prodigy," and "genius," which were used rather widely some years ago. Precocious referred to exceptionally early development and, popularly, implied that because development had been unusually rapid it would stop at an early age. Because of this erroneous conception of the development of exceptional ability, the term precocious virtually has disappeared from the educational literature. The term prodigy for many years suggested a child who was peculiar, unhealthy, even a freak, and is, for this reason, a term avoided in educational circles today.

The term genius has become so controversial in recent years that it is best used only with extreme caution. More than a quarter of a century ago Terman used the terms "genius" and "near genius" as a convenient classification for school children with IQ's above 140. Since 1930, psychologists and sociologists have been objecting to the prevailing use of such a definition of genius. An IQ of 180 or more is the point at which the

GIFTED CHILDREN, EDUCATION OF

term genius begins to apply, according to some. Others feel that the term is better reserved to apply to a person who *has* displayed some extraordinary and notable achievement. Thus, children of very high IQ's are only potential geniuses, especially since many of them never will make notable contributions to society because of circumstances or personal characteristics militating against such achievements.

Whether children with special aptitudes or talents, particularly the æsthetic talents, should be included among the gifted is still a controversial issue. Some hold that, since the school curriculum is organized so largely around intellectual activities, only talented children with superior intellectual abilities should be included among the gifted, especially if the gifted are in a segregated group. Others hold that any outstanding child, whether in intellectual, æsthetic, or even in mechanical areas, deserves special attention and should be included among the gifted since, all too often, only after children have been identified with a special group are they given the attention they warrant.

The approximate proportion of intellectually gifted children at various IQ levels to be found in the population at large is indicated in the table below, which was derived from data presented by Terman and Merrill in discussing the Revised Stanford-Binet Intelligence Scale.

IQ Revised S-B Intelligence Scale		Percentages Among Unselected Children
148 and above	.....	0.1
145 " "	.....	0.2
144 " "	.....	0.3
140 " "	.....	0.6
137 " "	.....	1.0
133 " "	.....	2.0
130 " "	.....	3.0
128 " "	.....	4.0
126 " "	.....	5.0

Thus, if gifted children are defined as those having (Stanford-Binet) IQ's of 130 and above, this represents the highest three per cent of the generality of the population. If, on the other hand, the highest one per cent of a normal population is to indicate the gifted, an IQ comparable to the Stanford-Binet IQ of at least 137 is needed.

The term gifted, describing individual superior children or groups of superior children, is used only in professional discussions.

In discussions with parents or children it is essential that particular caution be manifested in the terminology used. Only in very rare instances should parents be told that their children are "intellectually gifted." As far as the children themselves are concerned, the use of any term which identifies them as being intellectually superior is objectionable.

Identification. The intellectually gifted are most accurately identified by means of individual intelligence tests administered by psychologists who are trained and experienced in the procedures of administering and interpreting such tests. In many school situations, however, the psychological service necessary in order to identify the intellectually gifted is inadequate for this purpose. The use of group intelligence tests therefore has gained considerable impetus (1) as a "screening" device for determining which children to recommend for individual testing, and (2) as one means in the actual identification of gifted children.

The upper level of the test is an important factor to consider in selecting a group test, or in interpreting its results. Some group intelligence tests do not measure a group of gifted pupils adequately because the "ceilings" of such tests are too low; that is, gifted pupils pass test questions at the highest levels and might pass questions at still higher levels if such questions were included. Some group tests are inadequate because they measure a limited area of intelligence, thus penalizing children whose abilities lie in directions other than those measured by a specific test. The use of two or three different types of group tests usually is recommended in order to counteract the disadvantage of any one.

Intelligence tests are based necessarily upon normal experiences of children. Young children, especially those with extraordinarily meager experiences, cannot respond adequately to such tests until such time as their experiences become broader and more normal. Thus a child who at an early age might not be identified as gifted may well be so identified in later school grades. Other gifted children who might not be identified as gifted are those who were seriously disturbed emotionally while being tested, or the occasional gifted child who is especially handicapped in reading and cannot, therefore, be measured by means of a test involving ability to read.

GIFTED CHILDREN, EDUCATION OF

It is important, therefore, that intelligence test results be supplemented by all other available data about each child for adequate identification of the gifted.

Measures for the identification of children with special abilities or talents require even more cautious interpretation than do intelligence tests. Some tests have been developed for the purpose of measuring certain limited aspects of special talents and must be supplemented by teacher and expert judgment regarding the child's achievement.

Characteristics. The popular conception of the gifted child as sickly, nervous, and maladjusted, caring only for books and nothing about the normal play and games of childhood, has long been prevalent. Quite the contrary has been found to be true. Gifted children as a group seem to have all the advantages over average children—home background, physical development, emotional adjustment, social characteristics and interests, character and personality characteristics, as well as intellectual and scholastic qualities.

Despite the superior behavior of gifted children as a group, certain of them do manifest conflicts and maladjustments. Such difficulties are especially significant because of the superior potentialities of these children. One condition which may result in disturbances among some gifted children, especially among those of very superior mental endowment, is a wide discrepancy between physical and mental development. The gifted child of a very high intelligence level may well become bored with—or be rejected by—playmates of his own age. No matter how he strives to play with others at or near his own age, other children may not share his interests, his vocabulary, or sometimes his desire to organize play activities along more intellectual channels. Playmates at his own mental level, on the other hand, are so much older and more developed physically that they, too, are very likely to reject him. Finding himself unpopular on the playground he may find escape in solitary activities, usually of an intellectual nature, or in activities involving only adults, thus setting himself even farther apart from other children. Unless such a child learns to adjust in play activities to others of lesser mental ability or else is provided associations with others of his own

mental caliber, emotional disturbances are inevitable.

Some maladjustments are actually encouraged by the school. A school program based on competitive academic activities will encourage those children who are superior in intellectual areas to place undue value on mental achievement, which might lead in the direction of one or another type of emotional stress. Some such children may become conceited and intolerant of others less able in academic areas. Other gifted children, however, actually may develop a feeling of inferiority because of ever-higher intellectual goals set by themselves and encouraged by the school.

Some of the intellectual qualities possessed to a greater degree by gifted children as a group than by other children are: superior powers of generalization, quicker insight into problems, greater independence in thinking, and superior imagination and creative originality with respect to intellectual tasks. Such generalizations as these, however, do not necessarily apply to all gifted children. Some children are very uneven in their intellectual abilities, displaying serious lacks in certain areas, probably because of factors in their educational and emotional histories which affected the development of interests, purposes of learning, and temperament. Some superior children, for example, rarely approach an intellectual task with "high mental energy" but are impatient with details and superficial with respect to locating and using information. Such children present a challenge to the alert teacher. Other children, instead of having wide and versatile interests, keen to approach new intellectual areas, are interested only in areas in which they already excel. An exploration into the emotional basis for such early specialization may be revealing.

Gifted children, moreover, are more likely than average children to achieve adult success—eminence, leadership, or financial achievement. The possession of superior intelligence is no guarantee of such success, however, since other factors, such as environmental conditions, sex, race, economic status, physical stamina, social adaptability, and motive or drive to accomplish, also play an important role.

Educational Adaptations. There is general

agreement that the curriculum for gifted children should involve enrichment, but procedures for providing such enrichment vary widely. Some involve enriching the curriculum for such children by progressing them rapidly through the grades. Others involve providing enrichment activities for the gifted children in regular classes. Still others involve segregating gifted children into special classes and providing a curriculum program specifically for the children in those classes.

The proponents of acceleration and rapid progress through the grades indicate that gifted children can shorten the period of preparation for the learned professions and thus achieve their professional degrees by the age of twenty-three or earlier. In order to prevent serious emotional maladjustments because of physical inferiority, especially in the later grades, a combination plan of special classes and rapid progress is proposed.

Enrichment activities in the regular classes may involve introducing supplementary activities, encouraging the gifted to participate in such activities, or they may imply an integrated curriculum along informal lines, including active participation of all pupils in classroom activities. Supplementary enrichment activities for gifted pupils may be provided during specific periods set aside each week, at any time during the school day when such children have completed their regular assignments, or during after-school hours. Examples of such activities are: special units involving research and reports to other pupils, hobby clubs, special service groups, school councils, and classes or clubs in aesthetics or dramatics.

In an integrated deformatized curriculum, situations are provided which encourage active participation of all pupils, the gifted included, in planning and conducting classroom activities. Creative work is encouraged and individual abilities are given opportunities to develop, taking into consideration, however, the needs of the group as a whole.

Special classes for gifted children have been organized in a number of communities throughout the country; the largest numbers of children organized into such classes are in New York City, Cleveland, and Los Angeles. The purposes generally stated for organizing such classes are to provide enrichment activities rather than acceleration, and to pro-

vide the children with the opportunity to work and to play with others of more nearly the same mental and chronological levels. Problems involved in organizing special classes include transporting of pupils from one school district to another; persuading heads of schools not having such classes to allow their gifted children to be transferred; keeping the class registers high enough without too great a chronological age range in such classes; providing these classes with adequate materials and equipment; providing the classes with sympathetic, intelligent, and well-informed teachers; providing normal and wholesome relationships between the pupils and teachers of these classes and the pupils and teachers of other classes in the school; and providing the children in these classes with experiences and interests in common with other children in the community. L.K.E.

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GIFTS—See FROEBEL; KINDERGARTEN.

GLANDS—See ENDOCRINE GLANDS.

GOALS AND THE LEARNING PROCESS. The newer psychology sees goals as both cause and focus of endeavor: the individual acts in order to gain some end, something he desires or something he wishes to avoid. What he does is determined, in kind and degree, by the goal he sets before him. This is true not only of what are commonly referred to as problem-solving situations, but also of any situations involving conscious endeavor.

To examine this thesis in more detail: first, it is the pull of the goal on the individual which releases energy and arouses activity. Because he wishes the end, he initiates a series

GRADATION

of activities designed to achieve it—he thinks about means, he acts, he maneuvers to get what he wants. And he is activated to the degree to which he feels the goal is significant—to the degree to which he is “interested” in the outcome; for interest means exactly the pull of the goal on him. His persistence, too, is correlative with the importance he attaches to the goal. The individual, then, both undertakes activity and persists in it to the degree to which the goal, the end to be served, seems to him significant.

Second, the goal in mind causes the individual to act selectively and so to direct his efforts effectively. He pays attention to—notes, gives thought to, brings into focus of attention—what promises to further his enterprise. (The boy who is making a radio studies radio parts and instructions, not plants or poetry. He decides in terms of his goal what will constitute effective procedure. Without an end-in-view he cannot distinguish the relevant from the irrelevant; his activity is random, not directed. Without a clear goal he cannot discriminate, he cannot act intelligently.

Third, the goal provides a basis for evaluating achievement both throughout the process and in the end product. As the individual works he constantly asks, “Am I accomplishing what I wish? Does it meet my requirements?” To know his answer we must know his end-in-view. For example, does the boy wish to produce a really good radio or barely to satisfy a teacher requirement? The combination of elements which constitute his end-in-view will enter crucially into his process of evaluation as he proceeds and as he estimates the results.

Of the rich implications for education only one will be mentioned here: it must be apparent from the foregoing that it is the *learner's goals* (or absence of them) which determine both the quality and the extent of his efforts at learning. A goal which is merely or chiefly the teacher's does not generate dynamic or breed persistence or bring discriminating effort where it is needed—in the learner. Energy is accordingly well expended when it is directed toward stimulating interest in the learner, toward helping him clarify his aims and set up worthwhile goals; for it is *his* efforts which determine the learn-

ing and *his* aims and interest which determine the effectiveness of his effort. M.Y.O.

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GRADATION. The arrangement of curriculum or teaching materials according to the grade or the maturity of learners, is referred to as gradation. Since curriculum materials range from the very easy to the very difficult, they should be taught in those grades where the pupils can assimilate them most economically. Gradation is the determining of where along the educational ladder various subject materials should be taught.

Several ways are utilized to grade materials. One is the judgment of teachers, administrators, and curriculum workers; this judgment is supposed to be based upon experience in teaching children. Another is the pupils' preferences—for example, their choice of poems and literary selections—based on their interests and satisfactions. A more recent method of gradation is by actually teaching a certain portion of a subject at different grade levels and then determining at what level is found the most understanding, the greatest economy of time, and the best pupil reaction. It has been demonstrated experimentally, for instance, that pupils learn best the division of decimals involving long division at the mental age level of about thirteen or fourteen, which would correspond to the seventh or eighth grade. As a result of research in gradation, many of the difficult parts of the curriculum have been located and shifted to higher grades. The economic, political, and financial treatments formerly found in seventh or eighth grade history have been moved to the senior high school level. The trend has been to shift from lower to higher levels rather than in the other direction.

Gradation also refers to the organization of materials and exercises within a topic and is an application of the principle *from simple to complex*. Much of the pupil's difficulty in grasping a concept or in mastering a process results from the haphazard order in which

his learning experiences occur. Inexperienced teachers often take too much for granted and fail to see that two examples which look alike and which seem to be on the same level of difficulty are in reality sometimes quite different. Thus the teacher who knows the basic similarities among all applications of percentage is surprised when a student who has learned to solve an interest problem does not know how to solve a discount problem based on the same principle. Similarly, the English teacher finds that his students can recognize and correct the error of dangling participles appearing in unrelated sentences listed in a grammar book, but that they cannot recognize this error in their free writing. The teacher who is sensitive to the need for gradation makes certain that his presentation of new material and of practice exercises confronts the child with only one new difficulty at a time. How fine the gradation should be depends on the nature of the material to be learned and on the mental level of the students.

Lack of necessary gradation both in curricular sequences and in topical teaching is a charge often made by critics of the experience curriculum and the activity program. [See **GRADE PLACEMENT (CURRICULUM)**].

F.A.B.

GRADE EQUIVALENT—See **NORMS**.

GRADE MEETING — See **TEACHERS' MEETINGS**.

GRADE NORMS—See **NORMS**.

GRADE PLACEMENT (CURRICULUM). As schools become increasingly concerned with promotion practices and the modification of the curriculum to meet the needs of specific groups and individuals, the problems of sequence and the grade placement of materials become correspondingly important. The sequence which is followed in any particular field may be one of the following:

1. Logical organization, such as the outline for a science course built on the logical basis.

2. The chronological age of pupils, such as a program of physical activities adapted to pupils of various ages.

3. Chronological order, such as the development of a history program beginning with

early times and extending to the present, organized with various periods allocated to succeeding grades.

4. The interests of pupils, such as the organization of units which attempt to take into consideration what is found to be dominant interests at various ages, for example, shopwork as an activity for the junior high school period.

5. The needs of pupils, in which units of health are organized around the problems of health faced by pupils at various ages.

6. Ease of mastery, in which the simpler principles are first presented, followed by more complex principles. Lack of experimentation in this field has prevented effective sequence in many areas.

7. Availability of materials. The lack of materials, such as suitable materials in reading and science, has prevented an organization of a sequence in these fields and has frequently confined the subject or activity to grades either below or above a point where it might otherwise be placed.

Few effective studies in the field of sequence have been carried out. It would appear that the following are essential in connection with the development of an effective program of curriculum development:

- a. Studies should be made as to the optimum placement of activities, experiences and content, in terms of the needs and interests of the individual, the ease of learning, and possible use.

- b. Other things being equal, experiences and skills should be learned at a point where they can be used as early as possible.

- c. Where principles and subject matter are concerned, the learning should be at such a point that it will facilitate, rather than retard, future learning.

- d. It should be recognized that in the many things which must be learned by children, attention should be paid to the problem of co-ordination and articulation, so that proper integration will go on in the child's mind.

- e. The fact that a principle or skill can be learned at a particular level does not mean necessarily that this is the optimum place for it in the curriculum. As an example: children can be taught to read at a very early age, but the effort expended and the other problems involved may make it wholly undesir-

able and unprofitable to attempt to teach reading at a very low level.

In a number of curriculum programs, centers of interest have frequently been used as a major basis for determining a sequence. Such centers of interest frequently have become as artificial and as unreal to children as have previous so-called "logical organizations" of the curriculum.

The investigations on grade placements are based on the following factors: (1) present practice, (2) where a unit skill or knowledge is most useful, (3) where it is most interesting, (4) where the pupil is best able to carry it out, and (5) a combination of two or more of these factors. There appear to be two general methods of grade placement—first, by ascertaining the opinion of competent teachers; and, secondly, by means of objective data of difficulty, interest, and other factors. It should be remembered, however, that both procedures are theoretical and tentative. They are subject to correction based upon experience. The best that objective analysis can accomplish is to give a dependable starting point for the grade placement of units of work in the several grades.

If education is considered an evolving process, with the sequence of experiences and their content determined, in part, by the process itself, all aspects of the curriculum cannot be fully seen or outlined in advance. Likewise, curriculum building cannot be segregated from instructional practices and other conditions without seriously affecting the outcomes of the curriculum. Experiences and content should be determined progressively in relation to the ongoing process of teaching and living.

This does not mean that there shall be an unplanned curriculum, for an unplanned curriculum is unsound. It is necessary that there shall be considerable agreement in terms of functional learnings, as to the desirable scope and sequence of the curriculum. The general possibilities in a given learning should be considered and outlined in advance, at least in part. Sufficient flexibility should be permitted so that the learning experiences selected and emphasized are those of most significance to a particular group, and so that both the teacher and the pupils have some part in planning the activities and experiences

in which they are to engage. (See CURRICULUM.)

W.H.B.

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GRADE PROGRESS—See PROMOTION.

GRADE UNIT COST — See FINANCE. SCHOOL.

GRADES—See RECORDS AND REPORTS; STANDARDS OF ACHIEVEMENT.

GRADUATE EDUCATION. After 1900 the M.A. and Ph.D. degrees became generally required for certain types of teaching positions, especially at the college level, whereas in earlier years preparation for research had been the nearly exclusive function of graduate degrees, particularly the Doctor's degree. This development resulted in a large increase in the number of higher institutions that offered graduate degrees. Of late years, more than three thousand Doctors' degrees and in excess of twenty thousand Masters' degrees, distributed over a wide range of fields, have been awarded annually in the United States. To safeguard the character of graduate degrees, as graduate departments have expanded rapidly, a number of national organizations have aided in defining the functions of graduate study and in developing definite standards for the Masters' and Doctors' degrees.

Today the objectives of graduate study may point toward either research or teaching, and more frequently toward a combination of these two functions, with the teaching aim dominant. Recipients of graduate degrees are expected to possess the qualities of research competence, knowledge of the field of specialization, and usually teaching ability, with a much higher level of originality, research competence, and knowledge expected of the doctorate candidate.

The chief requirement for admission to

GRAMMAR, TEACHING OF — GRAPHIC METHODS

graduate work is a Bachelor's degree from a recognized college, with a specified amount of undergraduate preparation in the graduate area selected for specialization. The quantitative standards for the Master of Arts (M.A.) and Master of Science (M.S.) degrees are similar, including a minimum of one year of advanced study above the baccalaureate, or thirty semester hours of graduate work. The Master's thesis is generally required and usually carries credit to the extent of several semester hours, although some schools that offer specialized professional degrees, such as the Master of Education (M. Ed.), have discontinued the thesis.

The Doctor's degree usually represents a minimum of three years of graduate study beyond the Bachelor's degree, with the possibility that in many cases a large part of the third year can be devoted to the dissertation. Some form of dissertation is always required, although the types of Doctors' investigations vary widely, especially for such professional graduate areas as the Doctor of Education (Ed. D.) program.

During recent years a number of problems relating to graduate work have been vigorously discussed in the educational literature: (1) emphasis on theory or principles versus applications to practical problems, (2) the modern foreign-language requirement, (3) over-expansion of graduate departments, (4) availability of suitable thesis and dissertation problems to the extent of some three thousand topics a year for Doctors and twelve thousand or more each year for Masters, and (5) development of criteria for evaluation of graduate instruction.

C.V.G.

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GRAMMAR, TEACHING OF—See **ENGLISH, TEACHING OF; LANGUAGE ARTS.**

GRAPHIC METHODS. It is sometimes clearer, more convenient, and more effective

to represent educational data by means of graphs rather than tables. A series of graphs may give the reader all he needs to know, and give it to him quickly. Graphs make it easier to depict trends and to emphasize changes or contrasts. Many graphs have special uses; a percentile graph, for example, makes possible the rapid determination of the percentile value of any score. In careful statistical work it is usually advisable to present both the graph and the table upon which it is based.

There are many forms and variations of graphs, but all of them are adaptations of a few fundamental forms, such as bars, lines, curves, circles, and pictures. The two basic features of almost all graphs and charts are vertical and horizontal distances. When both are used in the same diagram, quantity or amount is indicated by area; but when either the vertical or horizontal is used alone, the amount is indicated by the height or width of the graphic form.

Both the teacher and the school administrator can make use of graphic methods to clarify their approach to the problems which they face. Let us assume that a battery of achievement tests has been administered in a given school during the third month of a school year. Miss A, the teacher of a fifth grade class, finds that her results, in terms of grade equivalents, are as follows:

TABLE I
Achievement Test Results—Grade V

Pupil	Read- ing Comp.	Spell- ing	Arithmetic Fundamentals	Reason- ing	Eng- lish	Median Achieve- ment
A	4.10	6.1	5.6	5.8	5.8	5.8
B	5.2	6.3	6.1	5.8	5.7	5.8
C	4.3	5.1	6.1	3.8	4.8	4.8
D	6.4	5.9	7.3	6.3	6.6	6.6
E	4.2	5.7	5.8	4.6	6.7	5.7
F	5.4	6.5	5.10	4.10	4.7	5.4
G	6.8	7.2	7.6	6.1	6.1	6.8
H	5.7	6.5	6.3	5.6	5.7	5.7
I	4.9	6.2	6.4	5.5	5.3	5.5
J	4.6	5.10	5.10	5.3	4.9	5.3
K	4.4	6.3	5.6	5.1	5.4	5.4
L	4.1	6.6	6.2	4.4	4.5	4.5
M	5.2	5.10	5.7	5.6	5.2	5.6
N	6.2	6.2	6.5	7.6	6.6	6.5
O	6.7	6.2	7.2	4.10	5.4	6.2
P	5.2	6.6	4.8	3.6	5.9	5.2
Q	4.3	5.7	6.1	4.1	4.6	4.10
R	5.8	7.1	7.1	5.6	5.7	5.8
S	5.5	6.8	5.9	4.7	6.6	5.9
T	5.2	6.5	5.10	4.6	6.6	5.10
Median	5.2	6.3	6.1	5.2	5.7	5.7

GRAPHIC METHODS

Bar Graphs.

The median results for her class may be presented graphically by means of either a

vertical or a horizontal bar graph (Figures 1 and 2). Since the length of the bars are proportional to the amounts represented, it is easy to visualize the quantitative results.

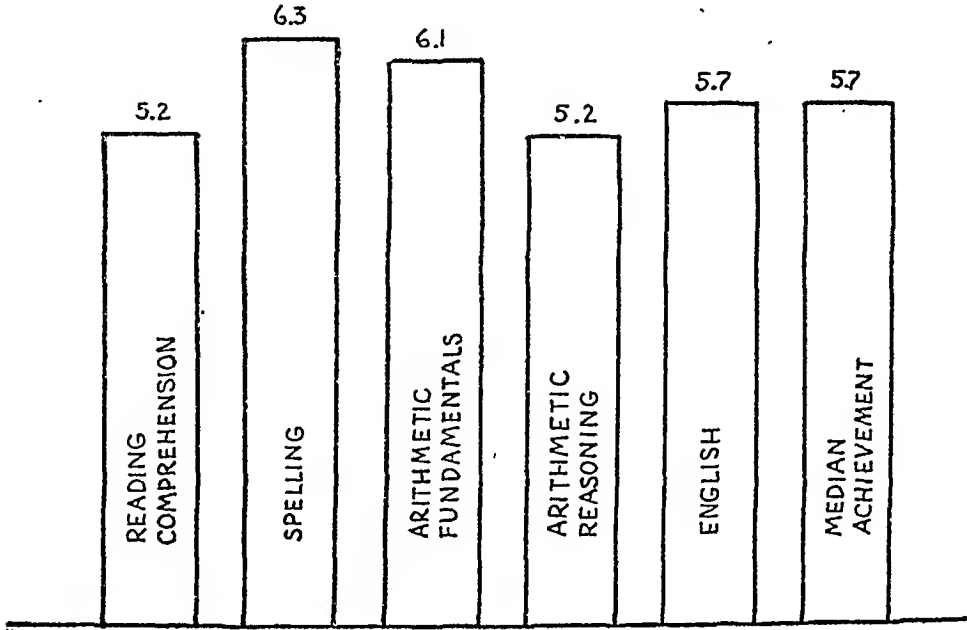


Fig. 1. PRESENTING IN THE FORM OF A VERTICAL BAR GRAPH THE MEDIAN SCORES SHOWN IN TABLE I.

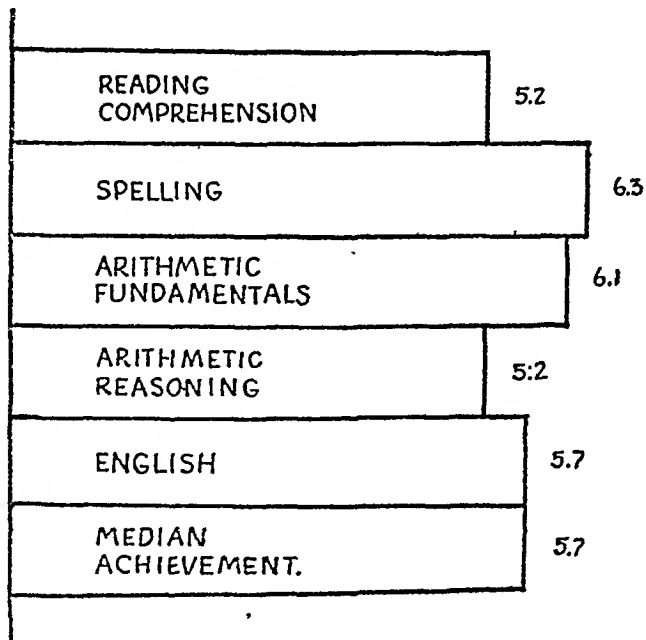


Fig. 2. PRESENTING IN THE FORM OF A HORIZONTAL BAR GRAPH THE MEDIAN SCORES SHOWN IN TABLE I.

GRAPHIC METHODS

The school administrator often finds it necessary to compare the scores made by all the classes on a grade. A *multiple bar graph* (Figure 3) may be used for this purpose. While multiple bar graphs have the advantage of presenting graphically a considerable amount of data, it is ordinarily difficult to comprehend them by quick inspection.

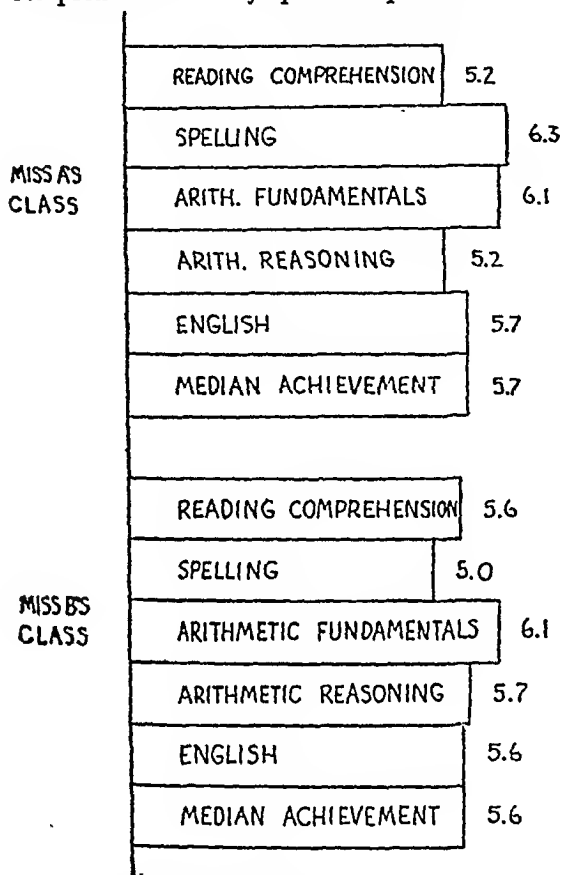


Fig. 3. PRESENTING IN THE FORM OF A MULTIPLE BAR GRAPH A COMPARISON OF MISS A'S CLASS AND MISS B'S CLASS.

Another variation of the bar graph which the administrator finds helpful is the *100 per cent bar graph*. Both vertical and horizontal bars may be divided into parts, each representing a portion of the whole. Thus, Figure 4 illustrates the distribution of reading comprehension scores given in Table I.

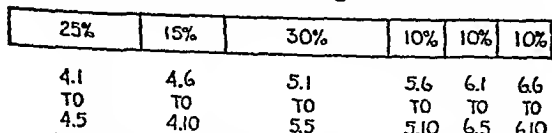


Fig. 4. PRESENTING IN THE FORM OF A 100 PERCENT BAR GRAPH THE READING COMPREHENSION SCORES SHOWN IN TABLE I.

An adaptation of the bar graph in which rows or columns of human figures are used to represent numbers of people has been developed in recent years. Similarly, money bags are used to represent expenditures, houses to represent construction of school buildings, etc. Such *pictorial bar charts*, as they are known, can be utilized very effectively by school boards to present statistical material for public consideration.

An additional adaptation of the bar graph makes use of a diagram of a thermometer in order to indicate change over a period of time. Thus, the number of books collected from day to day for the Victory Book Campaign is indicated on the thermometer by raising the height of the "mercury" as the campaign progresses.

Still another variation of the bar graph is the *histogram*, which is generally used to represent a distribution of continuous values. While the histogram does depict continuous values satisfactorily, in a truly statistical sense it should be reserved for the presentation of discrete data. An example of the teacher's use of the histogram is given in Figure 5, which presents the distribution of median achievement scores given in Table I.

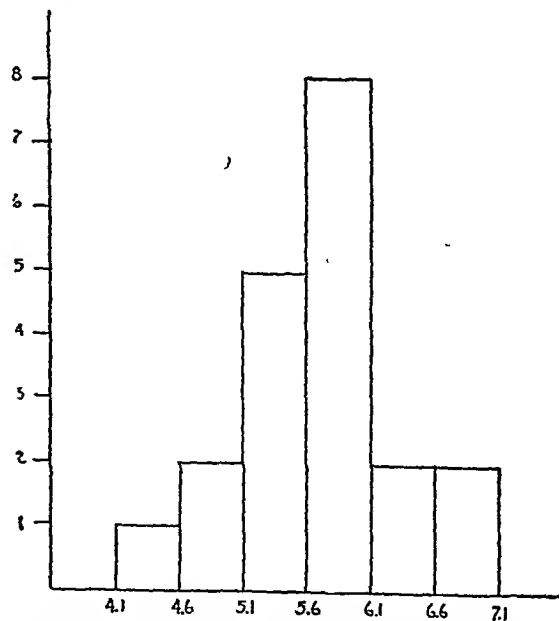


Fig. 5. PRESENTING IN THE FORM OF A HISTOGRAM THE MEDIAN ACHIEVEMENT SCORES GIVEN IN TABLE I.

Circle Graphs. The *circle* or *sector graph*, like the 100 per cent bar graph, is used to show the parts which make a whole.

Thus, it may readily be used to show percentages of children enrolled in elementary, junior, or senior high school, the expenditure of the school dollar for salaries, supplies, repairs, etc., and similarly for other factors and quantities. The sectors are often shaded or colored to show the portions more clearly. Numerical values should accompany the various sectors of the circle graph. Since it is not always easy to judge the relative size of sectors, numerical values will aid in making comparisons. An example of a circle graph is given in Figure 6, which presents a breakdown of the median achievement scores given in Table I.

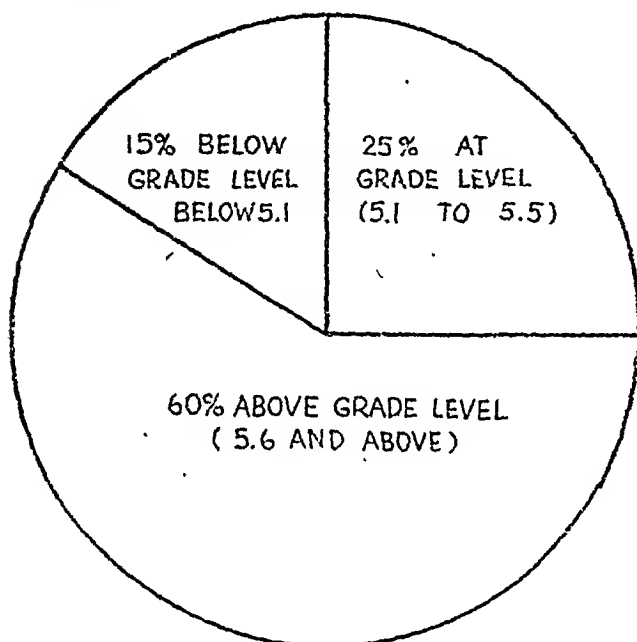


Fig. 6. PRESENTING IN THE FORM OF A CIRCLE GRAPH THE MEDIAN ACHIEVEMENT SCORES GIVEN IN TABLE I.

Line Graphs. When a curved or broken line is used to represent data, vertical distance along the ordinate usually indicates number or amount, while distance from left to right along the abscissa or base line usually represents succeeding time intervals. Values such as income, prices, rainfall, pressure, and an almost unlimited number of other items may be indicated on the vertical scale.

The teacher and the school administrator will find many uses for simple line graphs. Thus, the teacher of a fourth year class may chart the average progress of her children in arithmetic fundamentals for a given month, while the administrator may find it helpful to indicate average attendance in his school during each week of a school year. An ex-

ample of a line graph, illustrating a teacher's progress chart is given in Figure 7.

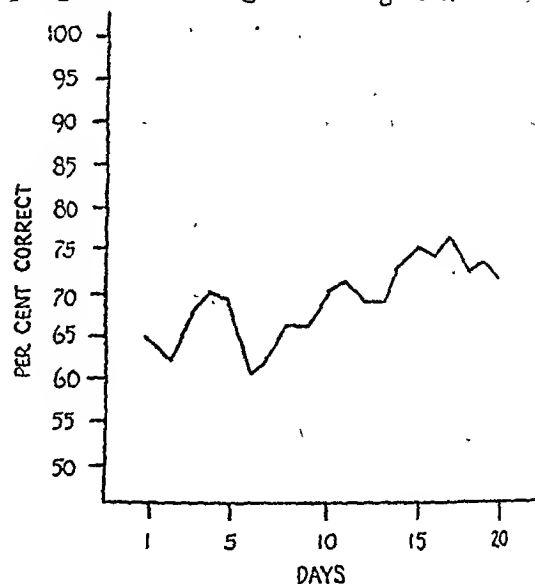


Fig. 7. AVERAGE PROGRESS IN ARITHMETIC FUNDAMENTALS OF A FOURTH GRADE CLASS.

When a line graph begins and ends at the base line, a surface is defined which is ordinarily called a *frequency polygon*. Like the histogram, the frequency polygon is a graphic representation of a frequency distribution. In both cases, the frequency is indicated on the vertical axis, and the steps or class intervals on the horizontal axis. The points which determine the frequency polygon are placed above the mid-points of the class interval and opposite the appropriate frequency. An example of a frequency polygon, based on the median achievement scores shown in Table I, is given in Figure 8.

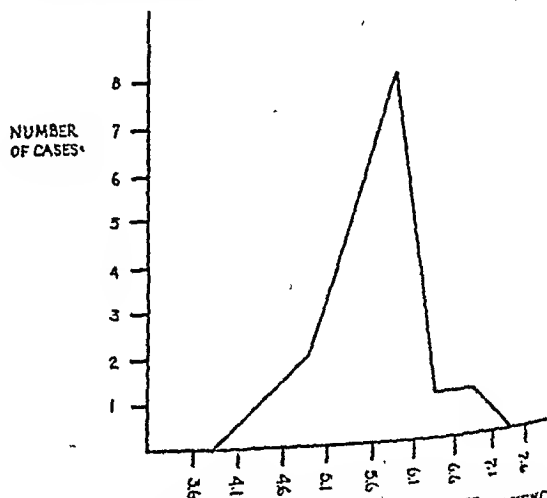


Fig. 8. PRESENTING IN THE FORM OF A FREQUENCY POLYGON THE MEDIAN ACHIEVEMENT SCORES SHOWN IN TABLE I.

The shape of the frequency polygon gives an excellent indication of the nature of the distribution. High and low points and irregularities show how the data are distributed, and can be readily interpreted. Frequency polygons can also be used more readily in comparing two classes than either multiple bar graphs or histograms. Because of the oblique lines used, it is easier to compare two distributions plotted on the same base line by means of the frequency polygon—similarities and differences stand out much more clearly. Technically, however, the histogram is more exact than the frequency polygon, in that the area in each successive class interval is directly proportional to the number of cases in that interval.

Another means of representing a frequency distribution is through the use of a *percentile curve*. The curve is constructed by computing several percentile (*q.v.*) points by means of which a graph can be drawn which indicates

the percentile values for the entire distribution fairly accurately. An example of a percentile curve, based upon the arithmetic fundamental scores shown in Table I, is given in Figure 9.

The percentile curve has a typical form which is reproduced fairly well in the above diagram. It should be noted that the smoothed curve shown does not pass through all the percentile points plotted.

The percentile curve may be used by the teacher and the administrator in many ways. Median and quartile scores, as well as measures of variability such as the variation of the middle 90 per cent of the group, may be read directly from the graph. When two or more percentile curves are drawn on the same pair of axes, the overlapping of scores can be readily determined.

Pictograms. A pictogram is a means of setting forth both quantitative and qualitative material in pictorial form. In one type of

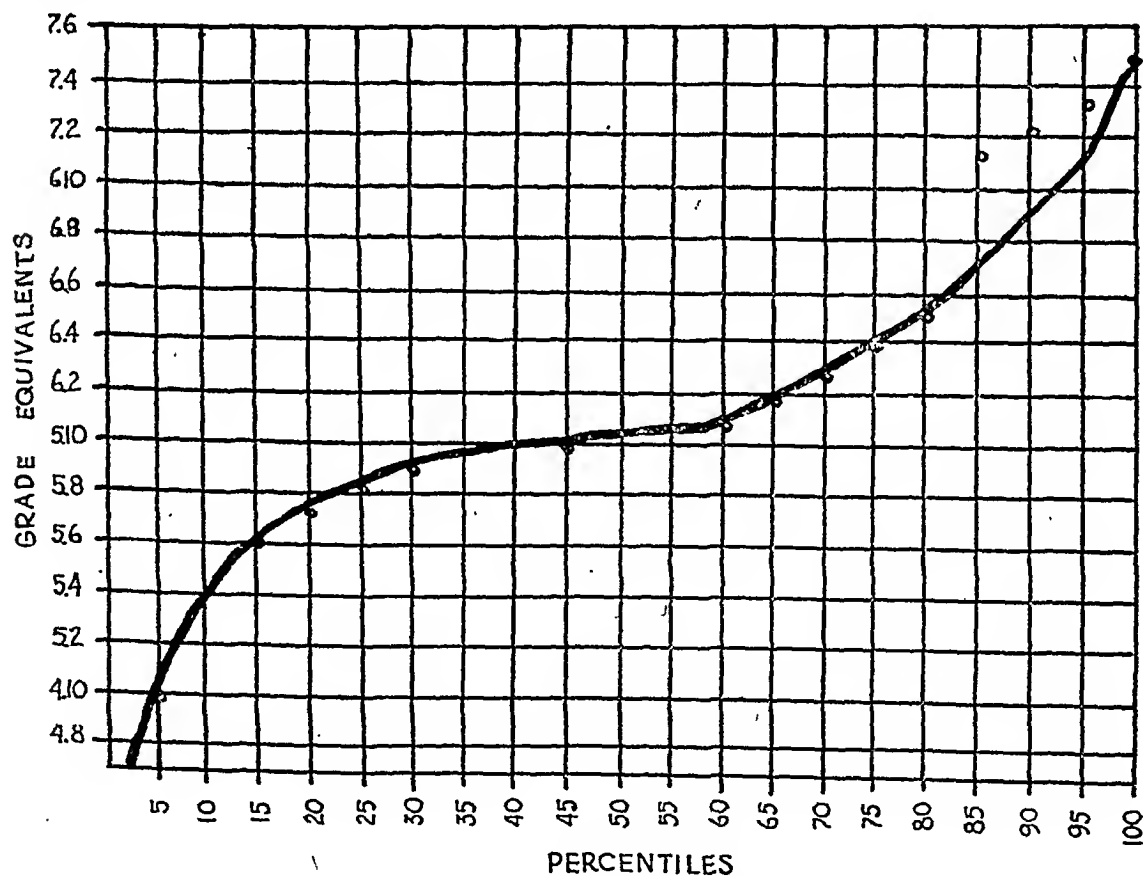


Fig. 9. PRESENTING IN THE FORM OF A SMOOTHED PERCENTILE CURVE THE ARITHMETIC FUNDAMENTAL SCORES GIVEN IN TABLE I

pictogram, the quantitative trend in school enrollment is portrayed by varying the sizes of persons who are representative of the data involved. Another form of the pictogram presents the same data by using pictorial representations of the same size throughout, and varying their number. In most instances, it is better to use the latter approach, since, when the magnitude of objects is used to show a trend, a common error of considering only dimensions and not areas often arises. In representing growth in college enrollment over a period of years by students of different sizes, for example, a doubled enrollment should not be shown by a student twice as tall, since the resulting figure will be more than twice as large if area is taken into account.

Qualitative factors may be shown pictorially by comparing equipment and facilities of former years with those of the present. Thus, comparisons may be indicated by using horse-drawn vehicles and motor trucks, stage coaches and streamlined trains, one-room school houses and multi-storied consolidated schools, etc.

Cartoons. Cartoons, as used in educational as well as in other fields, rarely attempt to portray an accurate and statistically correct picture of actual data. In most cases, general quantitative concepts, such as decline and increase, together with actual or implied causes and effects are presented. The use of cartoons, for the most part, is restricted to gaining ground for a point of view.

J.J. and H.S.-1

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GRAPHIC RATING SCALE—See RATING SCALE.

GREAT BRITAIN, EDUCATION IN
See ENGLAND AND WALES, EDUCATION IN.

GREECE, EDUCATION IN. Organization of Education. After the fall of the Byzantine Empire in 1453 the Greeks

lived for about four centuries under the rule of the Ottoman Empire; a revolution took place in 1821, and in 1830 Greece was recognized as an independent state.

The country to which the name Greece was given was but a small part of the Greek soil. Many struggles, occurring in different periods, were ended by the Treaty of Lausanne, which determined the boundaries of Greece as they were before World War II.

While the struggle for independence was going on and the military needs were absorbing the thoughts and all the poor financial forces of the insurgents, in the First National Assembly, which took place in 1824, a committee was organized for the purpose of "forming and suggesting a plan of organization of Elementary, Secondary and Higher Education." The Greek representatives, worthy of the history they themselves had gallantly written with their blood and of the long line of their glorious ancestry, did not forget the importance of education—a social activity upon which Modern Greece was to be based.

Elementary education was established as compulsory in 1834, in an epoch during which many of the most important European states had not yet taken such a measure. The small Greek state began its life with 71 elementary schools and 6,721 pupils of both sexes. In 1837 the secondary schools and the University of Athens were established.

Greece in all of her life confronted the educational problem seriously and all the Greek leaders—in spite of the successive wars that absorbed the greatest part of the resources of the country—fixed as one of their aims the development of education.

Elementary Education. *Maternal schools* were organized especially for the northern districts of Greece. Among the 500 maternal schools, 50 had two classes and the remaining had one.

Boys and girls began their training in the *elementary schools* at the age of six years. A minimum of 15 pupils was required to justify the appointment of a teacher. The elementary schools were composed of six grades, compulsory for the pupils who did not intend to continue their education further. The pupils who were to attend secondary schools left the elementary schools after the fourth grade and were admitted to the secondary

schools only after passing a special examination. In the elementary schools in which there were foreign pupils the law provided for a teacher of their language and religion.

Although education was compulsory, there were adults who had not finished the elementary school. For them elementary *night schools* were organized. Five persons were sufficient to justify the forming of a class.

The teachers of maternal schools were trained in nursery training schools having a four-year training period. Students were admitted to these schools after having finished the elementary school and having passed a special examination.

The teachers of the elementary schools were trained in the *Pedagogic Academies*, which had a four-year training period. Students were admitted to these academies after having finished the *Gymnasium* and having passed a competition. For every *Pedagogic Academy* two elementary schools, one with one class and one with many classes, were adjoined. Elementary school teachers with a successful career of six years were given an academic training for further studies in special courses of the universities, agricultural courses, and famous educational centers abroad.

Secondary Education. This was furnished in (a) *Gymnasiums*, with training periods of six years; (b) *Lyceums*, with training of two years. These follow the *Gymnasium*. The *Lyceums* are divided into *Classical Lyceums* and *Real Lyceums*. Graduates from the *Lyceums* can be admitted to the competitions for higher education); and (c) *Astika Schools*, which were equivalent to the *Gymnasiums* but had programs that also included special lessons according to the kind of school it was (i. e., agricultural, commercial, technical, or home economics).

The professors of the secondary schools and of the *Pedagogic Academies* were doctors or graduates of any one of the Greek universities. In addition, the professors of pedagogy studied in foreign pedagogic centers. The professors of physical training were trained in the Academy of Physical Training.

Elementary education was supervised by the Inspectors of Elementary Education. Greece was divided into 90 inspectorates who were under the supervision of the General Inspectors of Elementary Education; the latter

reported to the Board of Elementary Education.

Secondary education was supervised by 20 General Inspectors who in turn were supervised by the Board of Secondary Education. Both elementary and secondary education were under the supervision of the Supreme Board of Education.

Higher Education. In 1835 there was organized in Athens a "Higher School of Medicine, Chemistry, and Surgery," and in 1837 the University of Athens was founded. In 1836 a "Sunday Polytechnic School" was organized. In 1843 it became a daily "school of arts" and in 1882 it became a "Polytechnic Institute." Before World War II the Polytechnic Institute contained the following faculties: Engineers, Architects, Electrical Engineers, Chemical Mechanics, Topographers. To the Polytechnic Institute was annexed a secondary Polytechnic School (for architects, geometers, calligraphers, etc.). Other schools of higher education in Greece are the University of Saloniki (1925), the Superior School of Agriculture (1920), the Superior School of Commercial and Financial Sciences (1920), the Panteios School of Political Sciences (1920), the School of Evelpidon (Army), the School of Dokimon (Navy), the School of Icaron (Air Force), and the School of Telegraphy.

Professional Education. In addition to the Theological Faculties of the universities there were in Greece before World War II the Rizareios Seminary and four Secondary Theological Schools.

In addition to the Superior School of Agriculture there were: a Faculty of Higher Studies of Agriculture in the University of Saloniki; three private Superior Schools of Agriculture; Agricultural Asylums for orphans of both sexes; courses of agriculture which comprised a one to two years' training period (The students in these agriculture courses were teachers who after their training were placed in schools of agricultural districts and taught in the Sunday Schools of Agriculture. They also took care of the school gardens, being assisted and directed by the Ministry of Education and the Ministry of Agriculture. There were gardens in all the schools of elementary and secondary education); Sunday Schools of Agriculture for adults; and Ambulant Schools of Agri-

culture (training of one to three months).

In addition to the Superior School of Commercial and Financial Sciences there were 13 Secondary Commercial Schools (training period 5 years); 6 Private Secondary Commercial Schools; and 6 Secondary Commercial Schools annexed to private schools.

Besides the National Polytechnic Institute there were Secondary Technical Schools requiring three years of training, and Professional Asylums for Orphans (11 for girls, 5 for boys, and 5 private asylums for both sexes).

In addition to the Faculties of Medicine and Surgery of the Universities there were 3 schools for nurses, 2 schools for obstetrics, 1 school for hygiene, and 1 school for specialists of disinfecting.

There was one School of Mercantile Navigation.

Besides the Elementary Night Schools of General Education there were 7 Professional Night Schools and 2 Secondary Night Schools of Mechanics (five years' training period).

Schools of higher education in fine arts included the Superior School of Fine Arts, Secondary School of Fine Arts, Odeon of Athens (organized in 1871), Hellenic Odeon in Athens, National Odeon in Athens (the last two named had branches in many other towns), Musical Lyceum, and School of Dramatics.

Outstanding Educational Movements. During her life as an independent country, Greece adjusted her educational system to the social currents of the time. But even in that effort she kept the "measure".

After World War I, when Greece sought to establish and assure the friendship of her neighbors by official acts, the programs of her schools were adapted to this national movement. Fortunately, in the composition of those programs the existence of an incorrigible neighbor in the Balkan Peninsula and the growing ambitions of Nazism and Fascism were not overlooked, and when the time came for defense the Greek youth was ready morally also.

Table 1 presents comparative figures which show the tremendous growth of education in Greece during the past 110 years.

Table I

School year	1829-1830	1938-1939
Population	753,400	7,108,000
Elementary Schools	71	8,192
Pupils	6,721	825,000
Percentage	0.88%	11.8%
Secondary Schools	39	398
Pupils	2,528	60,980
Percentage	0.33%	1.09%

Relations with the United States. In Greece there were many foreign schools operating under the supervision of the Ministry of Education. Among those which were the most appreciated were the American schools (colleges for boys and girls in Athens and schools of general and of agricultural education in Saloniki). In opposition to the German and Italian Institutes, which were centers of espionage, the American schools operated with the purpose of teaching the language and the ideals of the United States to the youth of Greece and of strengthening the friendly bonds that have always united these two countries. The same is to be said for the American Archeological Institute.

As for the American Societies, which so generously and kindly assisted the Greek refugees of 1922 and came to the aid of Greece in her effort to rehabilitate them, their assistance has been very much appreciated.

No official information about the modification of the Greek educational system by the invaders during World War II is available (1943), except the fact of the introduction of the German and Italian languages in the schools of all grades. E.G.S.

GREEK, TEACHING OF—See CLASSICS, EDUCATION IN.

GROWTH AND MATURATION. One of the most obvious facts of human development is the growth in size with age and maturity. Less obvious are the differential rates of growth for different organs and different parts of the body, and the fact that physical growth, even after birth, means change not only in size but in structure and in function. If the various organs and parts of the body were measured and weighed at birth and compared with the size they would reach at maturity, it would be found that the proportions they had already reached varied considerably. In general, the head, and the parts of the body toward the head, as well as the

GROWTH AND MATURATION

parts closer to the spine, have at birth reached a larger proportion of their growth and henceforth grow at slower rates than those more distant from the head and spine. This variation in birth size is in line with the cephalo-caudal and proximo-distal direction of prenatal development. The head of the newborn child is extremely large compared with the rest of the body; it grows slowly and is of almost adult size by the age of six. In later years the head may not grow in size, but the proportions of its features change and the general countenance takes on an appearance easily recognized as immature, mature, or aged. The trunk and the limbs, on the other hand, grow right through childhood and adolescence. The internal organs of the body, as well as the skeletal parts, also differ from each other in the amount and the rate that they will grow. Between infancy and adulthood they change both in gross proportion and in comparative size.

Not only do the growth curves for different parts of the body differ in the length of time over which the curve extends, and in the degree to which the curve is accelerated, but each curve is itself irregular. These irregularities of rate of growth are themselves different for different parts of the body and, to an appreciable extent, for different individuals. Even during the first year of life the rate of growth is not constant. The baby, for instance, increases his birth weight much more during the first four months than during the last four of his first year. Height also increases irregularly. The most rapid growth occurs in the prenatal period and in the first two years. By the end of the first five years most children have doubled their birth length. A prepubertal spurt occurs frequently, with another spurt at adolescence.

Individual differences in the pattern of the growth curve can to some extent be categorized as group differences. Shorter and taller children have been found to differ in the pattern of their height curves. There are sex differences as well. Girls, as a rule, have their growth spurts at earlier ages than boys and also stop growing at a younger age. This means that in early adolescence girls may be actually taller and heavier than boys of the same age, though at all ages boys are the stronger.

Height curves for girls are much more

alike for girls with the same menarcheal age than for girls with different menarcheal ages. Similarities within a family of height and weight and the ratio of weight to height have been observed frequently. What the inherited factors are is not clear but it is agreed that we do not inherit body size itself, but rather factors which influence body size. That size is influenced also by environmental and nutritional factors is also evident from the fact that the present generation is both taller and heavier than the previous generation.

Since persons of the same chronological age differ in the rate at which they are approaching physical maturity, other indices of physical age have been sought. Height and weight have been discarded as being least indicative. The two most common measures used are those of bone ossification and of the maturation of the genitalia and of secondary sex characteristics. Infants have very little mineral deposit in their bones which consist largely of cartilage. Increasing age brings increased mineralization but here, as elsewhere, there are individual differences in rate of development. X-rays, usually taken of the wrist, indicate the degree to which mineralization has taken place. A comparison with age norms will yield the "anatomical age." Sometimes this term is used also to cover or include physiological age, the age which refers to the stage of pubescence. In childhood, dentition is sometimes used as an index of anatomical age. Differences in anatomical age ranging from 4 to 6 years have been found among children of the same chronological age. For any given child, the various measures of anatomical age correspond closely.

Investigations of brain growth have been of interest partly from the viewpoint of the relationship of such growth to the growth of intelligence. The growth of the brain has been studied both with respect to the development of total brain mass and with respect to alterations in structure. The human brain grows to about four times its birth weight. Both brain and spinal cord grow rapidly in the early years, reaching about ninety per cent of their full growth by the time the child is six years old. According to present-day evidence, the increase in mass size of the brain is not accompanied by an increase in the number of brain cells present at birth.

GROWTH AND MATURATION

Brain weight, whether measured absolutely or as a proportion of body weight, has not been found to correlate with intelligence. For a single individual, of course, brain weight and intelligence increase together during the early years.

Increase in mass is not the only form in which brain maturation takes place. In the adult nervous system, the white matter, but not the grey, is composed of fibres each covered with a white fatty sheath known as a myelin or medullary sheath. (See NERVOUS SYSTEM.) This development of myelin sheaths around neurones takes place after birth. The time when myelinization occurs is different for different regions of the brain and the hypothesis has been put forth that the brain regions which are myelinated earlier reach functional maturity earlier. There is disagreement, however, as to whether myelinization is necessary before the neurones can function. Another development of neurones is their terminal branching, which grows richer as the brain matures. While it is not clear just what factors in neural development affect intelligence, it is certain that growth of the nervous system and growth of intelligence are interrelated.

The interrelatedness of the multiple factors which influence growth in its various aspects often makes it difficult to study the influence of a single factor, but experiments can be arranged from which inferences can be drawn as to the contributing value of any one growth factor. It is, for example, evident that exercise as well as nutrition contribute to growth. While the effect of exercise cannot be separated from the effects of other growth factors, it is possible to determine whether a child will acquire a particular motor behavior by a specified age even if he is not practised in it. Studies of infants show that motor behaviors common to the human race, such as sitting up and walking, depend largely upon the maturational level of the child. Direct training may hurry the ability somewhat, but not to any great extent. On the other hand, motor abilities which are more individual, without which the human race could get along (e.g., skating) often show very decided practice effects. A certain stage of physical maturation is needed before practice can take effect, but once that maturational level is reached practice and progress go along to-

gether. Practice begun at a later maturational level may bring a higher rate of progress. A problem that is receiving a good deal of attention is whether practice that is begun at a later age will eventually lead to the same degree of skill as practice begun earlier and continued. It is probable that with some skills the differences will be slight, with others, rather considerable. The difference will also depend upon the gap between the ages when practice was begun. Many of the maturation studies have shown that when young children are given practice in some skill for a few weeks or months and are tested some time after the training has been discontinued, they show no greater ability in the skill than the control children who received no practice whatsoever. Another important finding is that growth with its changes in body proportions often changes the manner in which certain motor tasks are performed. Change in the manner of performance may result in a lower degree of skill.

While the matching of learning tasks to the maturational level of the child is important for the efficiency of the training, it is equally important for the health of the child. The child's heart is much smaller in proportion to the aorta than is the case in adulthood. If exhaustion is not to result, there must be plenty of rest and sleep. Even in adolescence, care must be taken that there is no overexertion. While vigorous exercise is necessary for the growing body, it should not be too prolonged. Strain also results from the child's attempt because of school pressure to acquire a skill beyond his maturational ability. Even the demand that the child maintain a certain posture may be too great. Good adult posture is impossible for children who have bodies of such different proportions from the adult. It must always be remembered that the child is not a small-sized man. The child lacks certain characteristics which he will have when he grows to maturity, and some of the adult characteristics he has in only elementary form. Moreover, growth in motor and mental coordination depends more upon increased complexity of the organism than it depends upon increased size.

Since the various growth processes of the organism are partly independent of each other and partly interrelated, it is difficult to place a child at a level of maturation. There

is no criterion for grouping which will bring about homogeneous groups. Since physical and mental development have only a low positive correlation, it has sometimes been suggested that children be placed in one group for tasks largely of a mental nature and in another group for motor and manual tasks. This will reduce, but not eliminate, the heterogeneity of each group with respect to the classifying criterion. Many motor abilities are themselves correlated only to a small degree. In the playground, a child who is with his own size group may find himself in competition with children older than he is who have had more time to acquire the skills needed for their play. Moreover, he may be behind them in social development, as important a factor in the choice of friends as physical and intellectual development. The child who is small for his mental or chronological age will have similar difficulties. If the teacher is to help the child find a group with whom he can fit in, the child's development and that of the other children in the several areas rather than in only one will have to be considered.

Norms of physical and motor development are often misused. Since norms merely record the average for a group of children who have been measured, they carry with them no implication that deviations above or below the norm are good or bad. Neither does the degree to which large deviations are common tell us whether such deviations should be a cause for anxiety. The treatment and guidance of each child should depend not only on the degree and type of deviation but on his general well-being. Another important factor to consider is whether growth in the various functions is so disparate that maladjustment will necessarily result. An eleven-year-old girl who is sexually mature, emotionally immature and mentally-retarded for her age will meet many problems which she will need help in solving. A very tall five-year-old boy may have no more ability to defend himself than other five-year-olds, and yet the six- and seven-year olds treat him as an equal with whom it is legitimate to have a fight. In the area of maturation, the dictum to take account of the "whole" child is not only a meaningful one but an essential one.

B.B.F.

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GUAM, EDUCATION IN—See UNITED STATES TERRITORIES AND OUTLYING POSSESSIONS, EDUCATION IN.

GUATEMALA, EDUCATION IN—See CENTRAL AMERICA, EDUCATION IN.

GUESSING. Guessing is possible on any kind of test, but it is not a serious problem except on examinations where the student has considerable probability of hitting upon the correct answer. For example, the student has a 50-50 chance of guessing the correct response on true-false tests, but his chances are negligible on essay examinations and very small on other recall tests. Guessing is not important unless it affects the reliability or the validity of the test. (See OBJECTIVE TESTS AND EXAMINATIONS.)

In general, four proposals have been made to offset the factor of guessing in recognition tests. One obvious possibility for reducing the frequency of guessing is to instruct students not to guess at doubtful items. How effective such instructions would be in reducing the extent of guessing depends on many variable factors, such as the students' willingness to take a chance and the importance they attach to the examination. Another proposal is to use tests where there are several options, such as matching tests or multiple-choice tests with at least four suggested answers. While the use of matching tests and multiple-choice questions does not reduce the prevalence of guessing it does reduce the likelihood of a student's making the correct response simply by guessing.

A third proposal is to use the so-called correction or scoring formula. The general form of this formula is:

$$S=R-\frac{W}{n-1}$$

In this formula, S is the score, R is the number of right responses, W is the number of wrong responses (this does not include omitted responses), and n is the number of possible responses to each item. For example, in alternative-response tests, such as the true-false, n is 2. Hence, the formula becomes $S=R-W$. Similarly, in 3-response tests it becomes $S=R-\frac{1}{2}W$; in 4-response tests, $S=R-\frac{1}{3}W$; and so on. In actual practice no correction for guessing is usually made, if there are five or more possible responses.

In theory the formula attempts to give the student the score he deserves rather than the one he may happen to make. On any particular test he may receive either more or less than he deserves, but he is likely to get what he is entitled to in the long run. The experimental results have shown usually that the use of the formula affects the reliability only slightly, but tends to improve the validity. It should not be assumed, however, that the use of a formula for correction is a complete solution to the problem of eliminating the students' guesswork in an objective examination. It is obvious that the laws of chance do not apply to the limited sampling that is found when a pupil guesses the answers to five or six true-false questions on a test containing one hundred items. Moreover, the formula does not provide for errors due to misreading or misinterpretation, since the assumption is made that all errors are the result of chance.

A fourth suggestion is to make the tests somewhat longer than usual. If the added items are of the same quality as the others, both the reliability and the validity of the test will be increased. The student who receives a high score by consistently guessing the correct responses on a long list of items is more likely to be a superior student than is the one who gets a high score because he is lucky at guessing the correct answers on a much shorter test.

C.C.R.

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GUGGENHEIM MEMORIAL FOUNDATION—See FOUNDATIONS, PHILANTHROPIC; SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

GUIDANCE. To many persons the aim of guidance, simply stated, is to help every individual develop the best that is in him as an individual and as a member of the groups to which he belongs. From this central aim stem all the principles and procedures included in the terms *guidance* and *student personnel work*. *Guidance* is the term more commonly employed in elementary school and high school; *student personnel work* and *personnel work* are the terms more frequently applied to similar work in college and industry.

The concept of guidance has changed in the course of years. In any age one may find quotations that represent the broad view of guidance expressed in the first paragraph of this article. Even after more than thirty years of widespread interest in guidance, there is still no unanimity of opinion and practice. More confusing still is the common discrepancy between theory and practice.

Certain trends, however, are perceptible:

1. The trend toward increasing the teacher's responsibility for guidance.
2. The trend toward the guidance of the individual as a whole, in all his many-sided aspects, life guidance rather than merely educational guidance or vocational guidance.
3. The trend toward developmental guidance which makes remedial guidance less necessary. In other words, the modern guidance worker is concerned with the best development of every individual rather than with the treatment of "problem cases" only.
4. The trend in vocational guidance toward emphasizing individual flexibility and adaptability based on self-knowledge rather than toward the choosing of a specific vocation.
5. The trend toward encouraging the individual to assume as much responsibility as possible for his own guidance—for making his own way in a complex world. In other words, the counselor serves as a consultant working with, rather than working on, the individual being "guided."
6. The trend toward recognizing the social aim for guidance as well as the aim of helping the individual attain personal success and happiness.

7. The trend toward viewing guidance in its educational, social, and economic setting; in other words, recognizing conditions within the school and society, such as policies of promotion, attendance, discipline, curriculum

GUIDANCE

offerings, and employment opportunities, which make effective guidance possible—or impossible.

✓These trends imply certain principles of guidance. Of central importance is the principle of respect for every individual. This naturally involves a recognition of individual differences and leads to an acceptance of the person as he is—his abilities, interests, needs, assets, and faults.

✓An essential supplement of such acceptance is the principle of growth. The personnel worker not only accepts an individual as he is, but focuses attention on what he may become. By keeping in mind the individual's potentialities, the personnel worker will help him to grow according to his own best pattern.

Part of every individual's potentialities is a certain capacity for self-direction. This the personnel worker will recognize and he will be concerned with helping the individual help himself—to see relationships among people and events in his experience, to think through his own problems, to gain insight, and to make plans. One way in which the personnel worker can appraise the effectiveness of his work is by noting the extent to which individuals and groups with whom he is working become increasingly capable of carrying on desirable activities by themselves.

These three guidance principles—acceptance, progression, and self-direction—should permeate guidance procedures. The study of individuals (including the keeping and use of records), guidance in the on-going activities of classes and clubs, counseling, group discussions, and committee work—these are the means by which the objectives of guidance may be realized.

In accomplishing this task every member of the school staff plays a part. The administrator creates conditions that make effective guidance possible. He selects well-qualified teachers and specialists in guidance, gives them work suited to their abilities, and through in-service education helps them to grow in their guidance responsibilities. He is also largely responsible for school policies of attendance, promotion, discipline, and for curricular offerings which meet every pupil's needs. The teacher guides while he educates. Knowing each pupil as a person, he can give him, at the moment of his greatest readiness,

appropriate experiences, information, and counsel. As homeroom teacher, class adviser, teacher-counselor, or core curriculum teacher, he occupies a position midway between classroom teacher and specialist. The specialist in guidance—dean of girls, dean of boys, vocational counselor, psychological counselor, and visiting teacher—by virtue of his position, training, and experience may be expected to have more expert knowledge and skill in this field, to be able to deal with more complex problems, and to have the background and time for cooperation with guidance agencies in the community. The specialist will use his time most efficiently by working with and through teachers. He can greatly extend his influence by supplying teachers with up-to-date and accurate vocational information, by working with them on individual cases, by demonstrating techniques of group work, by discussing with them concrete guidance problems which they are facing, and by periodically studying the cumulative record of every pupil with his teachers.

Under such leadership, the guidance influence will gradually affect administrative and teaching procedures. Pupil needs, when recognized, will lead to modifications of the curriculum, of the school schedule, of school policies, and even to modifications of the physical plant and the teaching personnel. The guidance point of view will lead to a fuller understanding of every pupil and consequently to individualization of instruction.

The guidance process includes work both with groups and with individuals. It is obviously uneconomical to give to individuals one by one certain information that can as effectively be imparted to groups. Moreover, guidance in social living cannot be given except in groups. The ways of democracy are not acquired in a vacuum nor is a social individual developed in solitary confinement. The good adjustment of some individuals, however, cannot be effected merely by providing group experiences for them. Only on the basis of an understanding of these individuals can they be guided into experiences they need and be helped to profit from their participation in group activities. A smaller number of students are not able to profit by any group experience without clinical treatment. These require expert psychotherapy by means of which they may gradually gain insight into

their experiences and relationships and learn how to modify their behavior so as to meet normal life situations.

There is no ideal guidance program that will be suitable to every school. The form of program will vary with the size of the school, the qualifications of the teacher, the leadership of the principal, the financial resources, the philosophy of education, and many other factors. Two criteria, however, may be applied to any type of program: (1) Does every pupil have as his counselor some congenial person who knows him as a whole, and (2) is the quality of the group work and the counseling good so far as it goes?

In the individual elementary schools all over the country, there are practically no guidance specialists. Guidance of children and parents is the responsibility of the teachers and principal. Each teacher serves as the counselor of her class, becoming acquainted with each of her pupils and using the resources of the school and the community to meet their individual needs. In the vast majority of small high schools the same lack of specialists in guidance prevails. In all these schools principals and teachers need assistance. This assistance may be given by a supervisor from the state department of guidance, a county psychologist or guidance worker, a trained counselor employed by a small group of schools conveniently located, or a committee of teachers each of whom has obtained some special training in guidance. In larger high schools having an effec-

tively functioning homeroom (*q.v.*) organization, the homeroom teacher serves as counselor for her group; in a core curriculum setup, the core teacher is the counselor. Another form of organization is one in which the best qualified teachers are selected as counselors of perhaps a hundred students, and are freed for two periods a day for individual work with their counselees or for home visits. A more centralized form of guidance program is that in which a director of guidance, chief counselor, or dean of girls and dean of boys assumes responsibility for the program as a whole. In every instance the success of the program depends upon a leader with vision and skill, teachers well qualified by personality who are willing to learn and willing to grow, and sound, practical in-service education. (See VOCATIONAL GUIDANCE.) R.M.S.

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HABIT. The word *habit* is used in both common speech and educational literature to designate a wide variety of learned activities from the socially undesirable to the highly ethical; from bodily skills, such as walking, to mental activities, such as the habit of critical thinking; and from specific abilities to generalized attitudes. The meaning of habit includes the idea of facility in the performance of an act combined with a persisting inclination toward a repetition of the act. The emphasis may in one case be on the skill of performance and in another upon the motivation to act, but neither aspect is excluded in typical habits.

The educator is concerned both with the formation of useful habits from infancy onward and with the elimination of undesirable habits which have already been formed. Since motivation and skill are both functions of the environment as well as of the learner, habits are established most readily when the environmental conditions support their acquisition and maintenance. Social customs in a particular community are thus strong factors in determining the habits formed by an individual growing up in that group. The continual provision of opportunities for action and of appropriate facilities for action is necessary for the adequate establishment of a habit.

One common error in educational practice has been an overemphasis on repetition as the essential factor in habit formation. Such emphasis neglects the factor of interest in the activity and overlooks the consequent real danger that forced repetition of an act distasteful to the individual concerned may drive him into opposed activity. In any case, even if the performance is learned under force, the activity usually ceases when the force is removed. Motivation toward an act is of primary importance, although practice of the act is essential also in habit formation.

Another criticism of emphasis upon repetition as the main factor in habit formation

arises from the high degree of adaptive change involved in many kinds of habitual action. A skill, such as handwriting, is maintained with certain characteristics that we call habitual, but it also involves a great many changes at each performance because of varying equipment and conditions. Likewise, the habits of courtesy and of critical thinking involve intelligent adjustment to circumstances in order that persistent movement in a general direction is maintained. Not only does habit formation in the majority of cases involve varied practice rather than exact repetition, practice that is varied until the performance is improved to a point of satisfaction, but the habit when learned and acquired as a disposition shows certain novel features each time it is displayed. The availability of routine action helps a person to perform readily and efficiently, but complete bondage to the previous manner of performance is dangerous when changing circumstances require modified action.

The fear that repetition will inevitably cause a habit to be formed has led to teaching techniques which restrict the student to performances done under minute direction and with as close imitation of the model as possible. Teachers have been afraid to let children make mistakes, under the assumption that those mistakes would immediately constitute habits. They have failed to distinguish between the effect of "mistakes" that the learner himself regards as mistakes and the effect of "mistakes" that the learner regards with satisfaction as adequate and proper performances. Even when a habit has been formed that it is later desired to change, the "breaking" of it is a much less arduous task in some instances than in others. In fact, it is sometimes not an arduous task at all. In the same way that different amounts of repetition and different conditions are needed for the establishment of different habits, so the elimination of undesirable habits cannot be reduced to a simple, invariable rule. In a

few cases habits have been eliminated by intentionally repeating the action with an awareness by the victim of its undesirability. In other cases a gradual substitution of new motives and new patterns of action has replaced those that were less desirable. In still other instances, it has been possible to eliminate suddenly forms of action that had become habitual.

Likewise, the degree of intelligent awareness by the individual concerning the habits he is establishing or eliminating may vary. A child or older person may have an habitual fear or affection established without any awareness of the process, while on the other hand a person may intelligently choose to practice a certain act or attitude until it becomes a habit that facilitates his effectiveness. In the majority of cases, likes and dislikes, prejudices for and against, the manner of walking and talking, "mannerisms," and the like are habits acquired with little, if any, deliberate intent, while most skills require deliberate practice.

In the field of skills, where the final habit is never attained at once, the term "hierarchy of habits" is used to indicate the sequence of levels of attainment. For example, a person may begin to use a typewriter with one finger "hunting and picking." He may later move up a step to the use of three or four fingers on each hand, but to reach full efficiency he needs training in the "touch" system in which all ten digits come into coordinated action. From one step to another in such a hierarchy there may occur some interference, but on the other hand the previous practice even with one finger may contribute to the higher skill and more effective habit. While teachers need to develop in children habits appropriate to their stages of development, the prospect of replacing at a later time early habits with those that are more mature and complex must be kept in view as a guide in the process. The habits which should be developed are those that will serve immediate needs and at the same time will contribute to the development of habits higher in the learning hierarchy.

Narrow conceptions of the neural organization underlying the formation of particular habits have led to treating habits as though they were independent and separate parts of the individual's action pattern. Mod-

ern views of the integrative action of the nervous system, however, support emphasis upon the interrelation of all aspects of behavior to each other and the treatment of any habit as an integral aspect of the individual's total behavior. In considering how to establish, modify, or eliminate any habit, the teacher needs to keep in view the effect of any practice not only upon the particular habit but also upon the whole personality of the learner and the direction of his conduct toward socially desirable ends.

W.F.B. and B.B.F.

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HAITI, EDUCATION IN—See CENTRAL AMERICA, EDUCATION IN.

HALF-GRADES—See PROMOTION.

HALKEVIS—See TURKEY, EDUCATION IN.

HALO EFFECT—See RATING SCALE.

HANDBOOK, STUDENTS'—See PUBLICATIONS, SCHOOL.

HANDBOOK, TEACHERS'—See TEACHERS' HANDBOOK.

HANDCRAFT—See CRAFTS.

HANDEDNESS. The treatment of hand preference in the child is a complex and confused problem partly because of the wide range of explanations offered and partly because the relative influence of the various factors involved differs in different individuals. The explanations offered for *dexterity* (preference for the right hand or side) include (1) functional domination by one half of the brain, presumably due to hereditary predisposition; (2) position *in utero*, the hand which is most free to move being preferred in early childhood and thereafter; (3) the social, environmental pressures of a right-handed world, which are exerted incidentally, without adult awareness, or intentionally by parents and teachers. Preference for the right or left hand (preference for the left hand being

known as *sinistrality*) develops gradually during the first year, but according to actual handedness tests of children and adults, 100% right-handedness is not often found in individuals at any age level. Tests of handedness include measurement of bones, muscles, and strength of grip, as well as observation of a wide variety of activities in which the individual uses one or the other hand, eye, or foot; e.g., reaching, throwing, writing, picking up small objects, threading a needle, hopping, sighting through a small hole in a paper, or folding hands or arms. Not all of these differentiate handedness equally well. Psychologists are not agreed as to the degree of relationship existing between eyedness and handedness nor concerning the significance of this correlation.

Interest in the handedness of children arises from three assumptions: (1) the left-handed person is at a disadvantage in a right-handed world; (2) bad consequences follow when a left-handed person changes over to the use of the right hand; and (3) ambitextrous (or ambieyed) persons suffer certain confusions and incoordinations. Observations and experimental studies are cited both to support and to negate these assumptions. There seems as much contradictory evidence as there are contradictory theories on the subject.

The problem of handedness has arisen with regard to three school subjects in particular—writing, reading, and speech. In the first, the struggle of the teacher to make the child use his right hand may certainly lead to stress and emotional difficulty with a hatred of school caused by the continual badgering received during the very first school year. Moreover, writing is difficult enough for any beginner, but writing with the hand that is less coordinated and skillful may seem like an impossible task. It would appear that if the child has come to school with a definite preference for keeping the pencil in his left hand, the teacher should help him arrange his writing materials and the position of his hand in such a way as to facilitate good writing with the left hand rather than to spend the time in forcing him to change hands.

In reading, reversals (*q.v.*) are sometimes attributed to a confusion in cerebral dominance, in which the brain fails to work consistently from either the right or the left hemisphere, and also to the difficulty that

left-eyed children may have in making eye movements to the right. Remedial measures proposed by experts in the teaching of reading rarely suggest any policy with regard to handedness but do advise exercises, such as moving the finger along the line, to help the child in reading from left to right.

Stuttering, which has been found to occur proportionately somewhat more often among left-handed children than among right, has been related to handedness in two ways; to lack of dominance of either of the brain hemispheres and to emotional upset caused by forcing the child to change from the right hand to the left. Most speech pathologists agree on the significance of the latter relationship. If this were the only relationship between stuttering and handedness, remedial measures would consist of helping the child to develop right-handedness in his first two years of life and, in cases where change must be made thereafter, of doing it with as much patience and understanding as possible. A number of speech psychologists, however, seem to hold strongly to the involvement of cortical dominance in stuttering. They believe that stuttering is a direct, rather than only an incidental, result of hand-change. The advisability of a shift from the right to the left hand together with special exercises for improving left-handed skills is seriously put forward by Travis for those stutterers whose childhood history or whose scores on handedness tests show a large degree of left-handedness or ambidexterity. The proposal goes as far as suggesting that a plaster cast be put on the right hand to immobilize it in the case of young children and of the mentally retarded who can not be trusted to keep on using the left hand by themselves. Such drastic proposals highlight the confusion and partisanship that can arise with regard to the solution of a problem where factors and relationships are involved and indistinct, and where there exists a vast array of individual differences ranging from children who have been spanked into hand-changing but show no visible ill-results to children who show difficulties as soon as hand-changing is begun.

W.F.B. and B.B.F.

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HANDICAPPED CHILDREN. The handicapped, for the purposes of education, may be divided into four large classifications: (1) the physically handicapped; (2) the mentally handicapped; (3) the socially handicapped; (4) persons with combinations of physical, mental, or social handicaps.

The physically handicapped may be divided into three groups: (1) those whose handicap involves one or more special senses, including the blind, the partially-sighted, the deaf, the hard of hearing, and the deaf and blind; (2) those whose handicap results in motor disability or limitation, including orthopedic cases (infantile paralysis, spastic conditions, osteomyelitis, bone tuberculosis, and congenital deformities, cardiacs, those suffering from respiratory diseases in certain stages, and malnutrition cases; and (3) those with various types of defective speech of whatever origin.

The mentally handicapped include: (1) all persons who in native intellectual capacity fall in the lower ranges of human intelligence—for example, low average, morons, feeble-minded, imbeciles, and idiots; (2) persons who have suffered accident or disease resulting in impairment of mental functions; and (3) persons suffering from emotional instability, psychopathic states, and insanity. Among the mentally handicapped are types educable in regular classes, in special classes, in homes, or in special institutions. At present, the limits of educability of such persons are more or less determined by the native endowment of the individual and the function of education of the mentally handicapped is considered largely a matter of choice and preparation for lower level occupations which involve only simple skill or elementary repetitive mental processes. It is believed, however, that much may be done for the mentally handicapped through provision of opportunities for the enrichment of their lives.

The socially handicapped may be differentiated from the physically or mentally handicapped, though physical and mental

handicaps may be contributory or coexistent, by the fact that their chief limitation in meeting the problems of life appear in behavior maladjustments, for example, in delinquency, destitution, dependency, or crime. The purpose of education should be prevention and rehabilitation. The various types of socially handicapped, even in the restricted sense in which the expression is used, are too many for enumeration in this connection, but they range from those who may be educated in regular or special classes to those who must be segregated in special institutions, in which there are facilities for psychiatric treatment.

In the larger sense the socially handicapped embrace all persons who, through accident, disease, or maladjustment on their own part, or the exigencies of society, fail to achieve and maintain a fairly normal economic and social status. From this point of view, as from the more restricted point of view, the purpose of education is both preventive and therapeutic. (See BLIND, EDUCATION OF THE; DEAF, EDUCATION OF THE; EXCEPTIONAL CHILDREN; JUVENILE DELINQUENCY; MENTAL DEFICIENCY; ORTHOPEDIC DEFECTIVES, EDUCATION OF THE; and UNDERPRIVILEGED CHILDREN.) M.E.F.

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HANDWRITING, TEACHING OF. Handwriting is now viewed not as an art but as a tool for expressing thought easily, speedily, and legibly enough to meet present social needs. The American cursive type evolved from the labored writing of colonial days, the ornate Spencerian era of the nineteenth century, and the vertical script stage of the early twentieth century. Manuscript, or print script writing, has shared the field with the cursive type since 1921. Following the Roman model, the letter form of this type is based on the use of circles and straight lines.

Developing well-coordinated arm, forearm, and finger movement, writing posture habits.

and attention to hygienic requirements is the concern of the methodology of penmanship. The teaching of penmanship is essentially the development of skills involving the principles of association and habit formation. Among the components of method in all grades are proper physical conditions, incentives, understanding and imitation of models, correctly spaced practice, and elimination of error. Proper physical conditions include not only the accepted "front position" of the body and the working positions of the forearm, hands, and fingers, but also proper eye distance from the paper, lighting conditions, relative positions of seat and desk, etc. Research indicates that, for children, effective incentives include comparison with standards or with their own or other pupils' attainments, personal approval or disapproval, awards, and the recognition of good penmanship as a means to a desired end. Necessary components in the teaching of correct form and movement are models, blackboard writing, analysis, rhythm, comparison with standards, and self criticism. From the evidence available, incidental teaching of handwriting is less effective than meaningful practice and attention to discovered errors. Practice exercises are of three types: those facilitating control, those needed in acquiring correct individual and grouped letter forms, and those needed in remedial work. To be effective they should be short, distributed, and concerned with meaningful content based on children's experiences. By varying requirements with children's abilities and rendering guidance in remedying errors, essential individualization is achieved. Children who are strongly left-handed should probably not be forced to change. Evidence on the nervous effects of changing in milder cases of left-handedness is inconclusive.

An emerging issue relates to the comparative values of cursive and manuscript writing. The elements of method seem to be the same for both. Experimental findings seem to indicate that, when taught to young children, manuscript is the easier to learn, is more legibly and rapidly written, and leads to more rapid learning of reading and spelling. In the upper grades cursive writing is more rapid than manuscript and also more legible when done more slowly. Children can learn both, and the shift from manuscript to cursive

penmanship is usually arranged at the end of the second grade.

Quality and speed are the chief elements tested in penmanship. In a timed speed test children write familiar or memorized material. Quality, or legibility, is measured by comparison with specimens on standardized scales of two types. One type—the Thorndike or Ayres scales and the Conard Manuscript Writing Standards—measures general ability. The analytical type—the Freeman scale for example—is used for diagnosis. Use of scales is known to yield more reliable appraisals than unstandardized judgments.

J.H.S.

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HARD OF HEARING CHILD — See DEAF, EDUCATION OF; HANDICAPPED CHILDREN; SPEECH CORRECTION.

HARMONIOUS DEVELOPMENT. The concept of harmonious development, whether outspoken or not, permeates all education, for naturally man considers harmony as a desirable goal. The question is not whether harmonious development is one of the objectives of education—it is—but how to achieve it. The answer to this question will depend on an educator's set of values from the realization of which, according to his opinion, harmony can be gained. From the classical Greek thought, harmony in man comes from his intellectual identification with the great laws and ideas in the universe, in other words with the *Logos* or *Kosmos*; for the Christian, harmony comes from faith and devotion to God's eternal will; in Comenius the concept of *Nature*, already known to ancient philosophers, again emerges. Harmony, according to Comenius, comes first of all from faith in God and his commandments, but it also requires an education which respects the "natural" laws of physical, moral, and mental growth.

In a more naturalistic, sometimes also in a pantheistic, form the concept of Nature plays a central role in Rousseau's thought. According to him harmony is possible only after man's return to "Nature." The profoundest ideas about harmonious education have been expressed by Pestalozzi, who combines consideration of the physical, psychological, and environmental conditions of harmonious growth with a deep insight into its spiritual conditions.

According to his Romantic philosophy of the essential unity between Spirit and Nature, Froebel conceived of education as the process which enables man to realize in himself the inner harmony of the universe. Like many other philosopher-poets (Plato, Goethe, Schiller) he recognized the importance of art and play as a means of achieving that physical-emotional-mental equilibrium which enables man to perceive form and unity in the diversity of being. In spite of their intuitive approach Pestalozzi and Froebel have anticipated many results of modern research into the "subconscious" levels of the mind, which, as we know nowadays, are of essential importance for a person's harmony. The same is true of Herbart, whose emphasis on many-sidedness and equilibrium of interests betrays his concern with harmonious development. Since the times of Rousseau and Pestalozzi increasing stress has also been laid on the notion that an individual can achieve harmony only if he is permitted to realize the productive trends and potentialities inherent in his own specific personality, as it develops in relation to its specific environment and purposes (individual differences). In modern education, psychology and psychoanalysis have tried to explain the conditions of harmony through experimental and analytical research, not seldom forgetting what older educators knew, namely that harmony in man has physical as well as "meta"—or "trans"—physical conditions.

Though the great thinkers of earlier times always saw individual harmony as interrelated with social harmony, modern educators have deemed it necessary to warn of the danger of one-sided individualism and a concept of harmony based on it. They say, correctly, that any socially defensible concept of harmony must have a social as well as an individual purpose. Hence the aim of educa-

tion must be to develop each individual's potentialities not only for his own advantage but also through, and for the purpose of, productive interaction with his fellow men.

The concept of harmony carries with it the same dangers as the concept of happiness to which it is related in many respects; one easily forgets that harmony, as well as happiness, is not simply a state of mind but an achievement. One who wants to understand and appreciate the peace in harmony and happiness must also understand the importance of conflict, grief, and effort in human development. (See AIMS OF EDUCATION.)

R.U.

References.

See the works of the authors mentioned above and the leading modern works in psychology and psychoanalysis.

HARRIS, WILLIAM T. (1835-1908).

Dr. Harris was primarily a logician and metaphysician, and one of the foremost exponents of Hegelianism in English. His later responsibilities as Superintendent of Schools at St. Louis in the 1870's and as United States Commissioner of Education from 1889 to 1906, to which post he was appointed by President Harrison, brought the educational philosopher into the executive chair where theory could be winnowed and tested.

His work, both before and after administrative burdens came to him, concerned the kindergarten in American education, the elementary school curriculum, and the training of teachers, with related ramifications. In the fields in which he wrote and worked he constantly held certain aims in mind. These aims were to psychologize education; to prove that the school has sociological functions and values; to place education upon an enduring foundation.

The Kindergarten. During the 1850's private German-speaking kindergartens had been set up in various parts of the United States by German immigrants. Some private English-speaking kindergartens had also been opened, notably that by Elizabeth Peabody in Boston in 1860. But the incorporation of the kindergarten into the free public school system in America was an achievement of Dr. Harris, effected during his superintendency of the schools of St. Louis. There, working with Susan Blow, a literal Froebelian, Harris built the kindergarten as the first primary

rung on the American educational ladder (1873). (See FROEBEL; KINDERGARTEN.)

Elementary School. Dr. Harris was an influential advocate of the place of elementary science in the school curriculum. In this respect, he may be grouped with Spencer (*q.v.*), Horace Mann (*q.v.*), and others as an advocate of enrichment of the curriculum in the direction of greater attention to science. A somewhat formalized version of Pestalozzi's object-lessons (see OBJECT TEACHING) had reached the United States by way of England, and had flowed into the stream of elementary school practice by way of the Oswego Movement (*q.v.*) and other sources. Against this object-lesson teaching, Harris urged the enrichment of elementary school experience by the introduction of elementary science. The course of study for the St. Louis schools (1871) embodied his views as to what such elementary school science should be.

Beginning as early as the third year of the elementary school, the growing child was to be initiated into the highly systematized organization of knowledge covering both inorganic and organic nature. This introduction he believed must be very gradual; the attendant scientific nomenclature must not be allowed to inhibit clear understanding; well selected "types" must be used as a base for wide generalization; the method must stress observation of concrete materials. Yet, with all these protective method qualifications, Dr. Harris' thinking well typifies the logician at work on the elementary school curriculum. From the adult logical retrospective viewpoint, there is a potent tendency to impose on the mind of a growing child the severe, systematized, classified, rubrics which it has taken some centuries of cumulative thinking to evolve.

Since Dr. Harris wrote and worked, a quite different conception of the optimum introduction to the study of natural phenomena has gained wide acceptance. This is nature study, and it has come to replace science in the Huxley sense, which was the sense in which Harris understood it. Nature study is the simple, observational study of the common things of nature, from the standpoint of their relation to daily life, independent of the organization of science. The issue is

between the logical and the psychological approach to the open book of nature.

Dr. Harris was much concerned with the place of "industrial education" (practical arts) (*q.v.*). He urged its place in the kindergarten, to develop "activities of muscle and brain," so that deftness and delicacy of industrial power in all later life might be secured. He believed that such arts should be omitted from the elementary grades, to be returned to with a pointedly vocational aim above the elementary level.

The Teacher. Dr. Harris has bequeathed a provocative conception of the function of the normal school, still relatively young in America in his day. He believed that it should not concern itself with the rudiments of the subjects to be taught by the intending teacher, however professionalized these subjects might be. He believed, on the contrary, that it should lead the prospective teacher to re-examine the elementary branches in relation to *all* human learning. The lower branches of knowledge should be taken up in relation to the higher: arithmetic should be reconsidered in the new light of algebra and geometry; geography should be illuminated by the normal-school study of geology. In sum, Harris believed that he who would teach must himself be educated; that he who would teach a paragraph must know the whole related chapter. P.R.V.C.

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HARVARD UNIVERSITY, SOCIETY OF FELLOWS—See SOCIETY OF FELLOWS, HARVARD UNIVERSITY.

HATCH ACT. The Hatch (Pernicious Political Activities) Act of Aug. 2, 1939 as amended July 19, 1940 (53 Stat. 1147, 54 Stat. 767. 18 U.S.C. 61) was designed by Congress to prevent the use of federal moneys in partisan political activities and campaigns, by placing restrictions upon the political activities of persons whose employment is in an activity for which the Federal Government contributes funds.

Despite an early ruling of the Attorney General of the United States apparently to

the contrary (Circular No. 3301 of the Attorney General, Washington, Oct. 26, 1939, p. 3, Sec. 3), the Act was interpreted to apply to certain groups of teachers. The United States Civil Service Commission, to which administration of the Act is committed by Congress, ruled that it applied to: (1) faculty members of land-grant colleges, regardless of how their specific salaries are financed; (2) instructors in vocational education under the Smith-Hughes Act; (3) teachers of vocational agriculture; (4) employees of a university experiment station or extension service of a College of Agriculture.

However, by Public Act 754, 77th Congress, 2nd Session (October 24, 1942), Congress amended the Hatch Act so as not to apply those provisions prohibiting political activities to "any officer or employee of any educational or research institution, establishment, agency, or system" operated publicly or by "any recognized religious, philanthropic or cultural organization." The amendment will probably meet most objections toward the original Act frequently voiced by leading teachers' associations. H.N.R.

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HAWAII, EDUCATION IN — See UNITED STATES TERRITORIES AND OUTLYING POSSESSIONS, EDUCATION IN.

HAZING. Hazing—the subjecting of new members of colleges, fraternities, or other groups to ridicule or other punishment as part of their initiation—is clearly on the wane in this country. Its avowed purpose is to make the newcomer realize his relatively minor importance and to prove his willingness to self-sacrifice, as well as to celebrate his admission to the group or institution. Sometimes confined to an hour or two, hazing occasionally extends over an entire year. Until the last decade hazing of men was frequently so severe that many colleges sought to control or abolish it (e.g., *School & Society* 29:201-4 F9, 1929). Recently sev-

eral conditions have helped to lessen greatly its severity and prevalence: the desire and need to make colleges attractive to the best high school graduates, large cross-sectioned house or dormitory groupings, the greater number and attractiveness of other extracurricular activities, the decreasing isolation of the college, the larger number of day students, and the increasing social significance of college studies and consequent increased seriousness of purpose and maturity among students. M.G.F.

HEALTH. Health is technically defined as "that condition of the body in which all the functions are performed normally." Evidences of health in children are found in normal growth, freedom from remediable defects or impairments, good nutritional condition, a minimum of days lost because of illness or accident, and sound mental attitudes. The relationship between pupils' health and their success in school has not been unequivocally established.

Recently some educators have broadened the medical definition of health, by considering it as a resultant of "completely wholesome, well-balanced, interesting living." Others think of health in terms of its end result—being able to "live most and serve best." A really adequate idea of health would include all three views of health—as a physiological condition, as a resultant of good living, and as an "ideal of vigor and efficiency."

According to this concept of health, standards must be individual. There is only one general standard—the best health possible for each individual. In order to attain this standard the individual needs an environment conducive to health, guidance in that environment, knowledge and skills required in making wise choices relating to healthful living, and self-determined goals and purposes which direct him in healthful ways. Two important factors in the total health program are the health of the teacher and the school health services.

In order to be "fit to teach," teachers should attain the best health possible. It is encouraging that the death rate for teachers is lower than that for the general population, that nervous diseases do not seem to be more common among teachers than among other occupational groups, and that city teachers

probably do not lose much more than five days annually because of illness. Teachers need to be on their guard especially against respiratory diseases and emotional instability. As one means of promoting the teacher's health the annual medical examination is generally recommended. Thus incipient health problems can be detected and the necessary treatment secured. In at least one large city all candidates for teaching positions or for permanent tenure as teachers must submit to a test for a possible tuberculosis condition. (See **TEACHERS' HEALTH**.)

The school health services which provide for the care of accidents and sudden sickness in school, periodic health examination, and a follow-up program to insure the needed medical and dental care require trained personnel—physician, dentist, and nurse. The school physician is concerned with the promotion as well as the protection of children's health. His influence is extended a hundred-fold as he works with and through teachers, the nurse, guidance workers, and physicians in the community, instead of devoting practically all his time to the examination and treatment of individual children. The nurse likewise can help the teacher gain proficiency in some of the simpler tests of vision and hearing, in the detection of communicable diseases, and in gaining the cooperation of parents in obtaining these necessary corrections or treatment. Especially during emergency periods when there is a serious dearth of medical, dental, and nursing service, it is more important than ever that these health specialists carry on an active instructional program involving the cooperation of teachers, parents, and pupils. Thus the special school health workers, instead of functioning merely as the state laws require, in the control of epidemics and in the medical examination and inspection of children, perform an important educational rôle in the improvement of children's health, broadly defined.

The present programs of school health service have reached a higher state of development than any other single public health service. They are most successful when integrated with the rest of the school program and with other community activities. The school's responsibility to provide a healthful environment for its occupants has been recognized from the first. Standards have

been established for ample floor space, adequate playground room; a suitable water supply, proper toilet facilities, proper illumination, and seating which prevents fatigue and encourages good posture. The example of clean, attractive, and well kept schools helps pupils learn the value of cleanliness and the proper care of facilities and equipment. The inculcation of these habits it is hoped will carry over to the care of the home.

The periodic examinations made by the physician should be educational, thorough enough to be serviceable, and effectively followed up. Although the annual medical examination is desirable, health educators in school systems with limited medical facilities have recommended the following ways of having the school physician make the best use of his time: (1) by examining all pupils less frequently than once a year, (2) by providing "annual examinations only for those students who cannot afford the services of a family physician," and (3) by "selecting for reexamination and follow-up only those students with definite health problems." Thus the school doctor will be enabled to do more effective medical and educational work with those students whom he examines.

If the parents of elementary school children are present at the examination and are as eager as the child to know what to do to improve the child's health, "an unparalleled educational opportunity" is offered. Unless the significance of each item of the health examination is understood and appreciated by the parent and child, even obvious defects frequently remain uncorrected.

With high school students, the school doctor would not usually invite the parents to the examination. He would take it for granted that the student was ready to assume primary responsibility for his own health. At the end of the day the doctor might hold a conference with the physical education teachers, counselors, and administrative officer in touch with the student in order to make any adjustment of program or instruction that was indicated and thus make it administratively easier for the student to get started on the road to correction of defects and improvement of his health.

Thus the gap between the examination and the necessary follow-up is quickly bridged. Records are another means of making the

medical examination function. These should be of two types: (1) the medical record on which the technical findings of the physician and his opinions and recommendations are recorded; and (2) the pupil's health card on which the teacher records her daily observation of the child's appearance and health behavior, absence due to illness, results of tests of vision and hearing, height and weight, dentist's report, doctor's statement made to the mother and his recommendation to the teacher as to what she can do for the child's health. This card would also provide space for the nurse's follow-up and the teacher's summary of the pupil's health. In high school, students may take responsibility for keeping their own health record and should discuss their progress with their adviser once or twice a semester. Thus the health of children and young people, so crucial to the welfare of society, will be promoted by the most efficient use of health specialists, by the growth of teachers in the health program, by an increased sense of responsibility on the part of pupils and parents, and by more effective coordination of the contribution of all who have a share in the health program. (See COMMUNICABLE DISEASES OF CHILDHOOD.)

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HEALTH, TEACHERS'—See **TEACHERS' HEALTH**.

HEBREW EDUCATION—See **JEWISH EDUCATION**.

HENRY FELLOWSHIPS—See **SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL**.

HERBART, JOHANN FRIEDRICH

(1776-1841) was a native of Oldenburg, in northwestern Germany. He came from a well-to-do family; his father was a learned public official, and his mother was a woman of exceptional intelligence who carefully supervised the early rearing and education of her gifted son. Between the ages of twelve and eighteen, Herbart attended the Gymnasium of his home city, from which he was graduated with the highest honors. He entered the University of Jena to prepare for the practice of law. At the University he studied under Fichte and was deeply influenced by the new humanism which prevailed there and by his associations with a brilliant group containing such creative geniuses as Herder, Goethe, and Schiller. Finding that he had little taste for the study of law, he left the University to become the private tutor to the three sons of the Governor of Interlaken, in Switzerland. While in Switzerland, he visited Pestalozzi's school at Burgdorf and wrote sympathetically of what he observed there. From 1802 to 1808 he lectured on education and philosophy at the University of Göttingen, where he published his famous *Science of Education*. For the next twenty-six years, he held the chair of philosophy at the University of Königsberg, formerly occupied by the great Immanuel Kant. Here he founded a pedagogical seminar, a practice school for teacher-training and experimentation in methods of teaching, and published in 1835 his monumental work, *The Outlines of Educational Doctrine*, a clear and practical exposition of his educational ideas.

In Germany, the influence of Herbart was carried into the second half of the nineteenth century by Ziller, at the University of Leipzig, who founded the Association for the Scientific Study of Education, and extended the Herbartian methods into the elementary schools. Rein, a pupil of Ziller's became head of the pedagogical seminar and practice school at the University of Jena, and made it the great center of European Herbartianism. The Herbartian movement reached the United States late in the century when a group from the Illinois State Normal School, including Charles DeGarmo and Frank and Charles McMurry, went to Jena to study, and brought back the new science of education. In 1892, the National Herbartian Society was organized, the name being changed later to the National Society for the Study of Edu-

cation (*q.v.*). Most of the normal schools, particularly in the Middle West, were soon won over to the Herbartian principles and methods and, through the teachers they sent to every section of the country greatly influenced the practices of our schools.

Herbartian Aims. According to Herbart, the ultimate goal of education is the development of moral character. He regards steady, dependable moral personality as the highest aim of humanity, and consequently of education. Herbart believed that the ultimate goal of moral personality could be attained only through the development of a group of desirable, abiding, many-sided interests. The aim of education is to analyze the interests of man to discover which are best for individual and social living, and then by means of instruction to enable the individual to develop and apply these interests in the various situations of life. By producing a well-balanced many-sidedness of worthy interests, education endeavors to develop in the youth the will to be good and the desire to make sound moral choices. Thus a high degree of personal character and social morality will result.

Before Herbart, educators aimed at teaching morality through the use of preaching, precept, and the memorizing of moral maxims. Centuries of experience have demonstrated the futility of this method. Herbart believed that moral conduct must be based upon the development of the will, and that will-attitudes depend upon the accumulation of experiences, so organized as to express themselves freely and constantly in intelligent moral decisions. "We will what we know; we cannot will what we do not know." This is Herbart's justification of his aim of "many-sided interests." Herbart believed that the main purpose of education is the growth and development of ideas in the mind of the child, brought about in conformity with psychological laws.

Herbart himself aimed at the development of the youth rather than of the child, and, differing in this respect from most of the other developmentalists, concerned himself more with secondary than with elementary education. Most of his followers, however, applied his philosophy and methods to the field of primary education.

Herbartian Curriculum. Herbart outlined the materials of instruction in terms of

his doctrine of interests, classifying all subject matter in terms of typical human interests. Man's interests, he said, were derived from two sources: (1) his contacts with real things of his environment, or sense impressions; and (2) his contacts with other human beings, or social intercourse. He believed, therefore, that the content of education should consist of two types of studies: (1) studies about things, such as sciences, mathematics, and fine arts; and (2) studies about people, such as languages and history.

The Pestalozzians had already emphasized and developed the first group of subjects. Of the second group, however, Pestalozzi had concerned himself only with oral language. It remained for Herbart and his followers to introduce and foster history and literature as subjects of preëminent importance in the curriculum. Herbart himself was concerned primarily with the application of his theory to the study of languages, literature, and history in the secondary schools. Ziller, however, seeing the value of Herbartian-taught history and literature as a means for developing the morals of the child, made story-material from history and literature the basis of the content of the elementary curriculum. The Herbartians have favored history particularly as a study of primary importance in developing good human relationships and good citizenship. As a result of the influence of the American Herbartians, history and literature have become important subjects in our elementary course of study. History, previously limited to the upper grades with the sole aim of developing national patriotism through the study of American history, is now taught in all grades, drawn from all sources, and aimed at social and moral results as well as civic. Literature, originally used as models for expression and taught by means of a few selected classics, is now taught for its moral and æsthetic values with material drawn from the whole range of children's literature.

Herbartian Method. Interest is at the basis, too, of the Herbartian method. Skillful teaching is the ability to stimulate interest without resorting to force on the one hand or sugar-coating on the other. The details of his methodology are in fact statements of ways in which interest, the *sine qua non* of "educative instruction," can best be aroused. Herbart took Pestalozzi's principle that

learning must proceed from the known to the unknown and elaborated it into the doctrine that new knowledge is always assimilated in terms of what the learner already knows. The pupil must be in the proper frame of mind to attend to the new experience, and must have a stock of recalled related ideas which will enable him to interpret and respond to the new situation. Since Herbart called these related revived experiences "apperceptive masses," this principle is known as the "doctrine of apperception."

Herbart insisted that only large, connected units of subject matter are able to arouse and keep alive the deep interest of the child's mind. This he called the "doctrine of concentration." Concentration occurs when the attention is completely absorbed in one line of thought, when the mind is wholly immersed in one interest to the exclusion of all other interests. Effective reactions of will and conduct come only when the whole of consciousness has been focused on one single unit of thought. Herbart supplemented this doctrine of concentration with the "doctrine of correlation," which makes one subject central in the focus of attention, but sees to it that this subject receives support from all other related subjects. These doctrines were implemented in the five steps of instruction popularized by the followers of Herbart as the "five formal steps of the recitation":

(1) *Preparation.* This is the process of reviving in consciousness the related ideas from past experience, which will arouse a vital interest in the new material and prepare the pupil for its rapid understanding and assimilation.

(2) *Presentation.* This process involves the presenting of the new material, in concrete form unless there is already ample sensory experience, and in such a way that it is closely articulated with "the apperceptive mass," or past experience.

(3) *Association.* This is the process of assimilating the new experiences, by using analysis and comparison to point out points of likeness and points of difference between the new and the old, thus enabling the new idea to take its true place in the mind's understanding.

(4) *Generalization.* This is the process of forming general rules, laws, and principles from the analyzed sensory experiences, thus developing general concepts in addition to

sensations and perceptions in the mind's structure.

(5) *Application.* This process consists of putting the generalized idea to work, sometimes merely to test it, sometimes to deepen the impression by expression, and sometimes to put the idea to use in a purely utilitarian sense.

Dewey has challenged the "formal steps" of the Herbartians on the ground that thinking occurs only when there is a real problem. Another weakness of the Herbartian method was their attempt to use the "formal steps" in the planning of all types of teaching, in the lesson for skill and in the appreciation lesson, as well as in the thought lesson. We owe a debt to Herbart, however, for developing a more complete educational psychology and a better organization and technique of classroom instruction. (See *INDUCTIVE-DEDUCTIVE METHOD.*) E.H.W.

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HETEROGENEITY — See **HOMOGENEITY**; **VARIABILITY**.

HEURISTIC METHOD. This word comes from the Greek, *heurisko*, to discover or to find out, a meaning that still holds. The student is given the basic responsibility of solving the problems that confront him. The term is essentially synonymous with problem method or development method. In this country the expression is used very little. For a good example see CHARLES DE GARMO, *Principles of Secondary Education* (Macmillan Co., New York, 1908), Vol. II, p. 178. W.R.

HIGH SCHOOL—See **SECONDARY EDUCATION**.

HIGHER EDUCATION. The term "higher education" usually refers to formal education provided for graduates of high schools or preparatory schools—i.e., to education given by colleges, graduate schools, and professional schools. In particular, it

refers to that given by institutions accredited by the regional accrediting associations and by the chief professional associations which require at least high school graduation for entrance. Thus, higher education may be given, for instance, by colleges or schools of liberal arts, commerce, home economics, music, education, physical education, agriculture, engineering, law, medicine, theology, religious education, or graduate study.

In 1900 there were about 168,000 students enrolled in such schools, in 1920 about 517,000, and in the regular school year of 1938-39 about 1,350,000. The enrollment in 1942 included about 200,000 in separate junior colleges, 130,000 in teachers' colleges, 16,000 in the collegiate divisions of normal schools, and 100,000 in graduate and professional schools. These totals do not include all of the 430,000 summer session students or the 296,000 other students of collegiate rank in adult courses.

Having such a broad meaning, the term higher education is not entirely justifiable. It refers to instruction in both manual skills and highly theoretical subjects, as well as to much instruction of lower quality than that of many secondary schools and of some unaccredited schools for adult education. By uniting the first two years of college and the last two of high school, the University of Chicago has further complicated the task of defining the meaning of higher education.

In fact, it is doubtful that the term can ever be accurately defined, for stages of education merge into and overlap one another. On the other hand, it may be defined some day in terms of education for mature people which is beyond reach of adolescents (i.e., education concerning the more complex problems which fully responsible people alone can understand), or in terms of education which assumes a background of secondary school education, or in terms of both. (See also CHICAGO PLAN; COLLEGE ADMINISTRATION; COLLEGE ENTRANCE REQUIREMENTS; COLLEGE FACULTY; GRADUATE EDUCATION; LIBERAL ARTS COLLEGE; MUNICIPAL COLLEGES and UNIVERSITIES; ROLLINS COLLEGE PROGRAM; ST. JOHNS' COLLEGE PROGRAM; STATE COLLEGES and UNIVERSITIES; and such articles as AGRICULTURAL EDUCATION; ENGINEERING EDUCATION; JOURNALISM EDUCATION; MEDICAL EDUCATION.)

M.G.F.

HISTOGRAM—See GRAPHIC METHODS.

HISTORY, TEACHING OF—See SOCIAL STUDIES, TEACHING OF.

HISTORY OF EDUCATION. The study of the history of education did not receive much serious attention until toward the close of the 18th century. Two factors influenced the awakening of interest in the educational thought and practice of the past. The first was a growing tendency to evaluate human life and progress by comparison with past civilizations. The second was a desire to formulate certain standards derived from the past in order to counteract the proposals of revolutionary radicals.

The first real history of education, the *Traité des Choix et de la Méthode de Études*, was written by a Frenchman, Claude Fleury, and was translated into English by S. Keble in 1695; the first part is devoted to a history of studies down to the Renaissance, and the second part to a theory of the curriculum. In the century that followed there appeared many histories of individual schools, but no general history of education. In 1829, Christian Schwartz wrote in German a comprehensive educational history of most of the nations of antiquity. He believed that the history of education is a branch of the history of civilization, and that an account of the past gives insight into the present. This practical value of the study of the history of education was recognized in a number of histories written in Germany after 1830. The work of Karl von Raumer in 1847, more than any other, has exercised an influence on histories of education written in English. He devotes the greater part of his work to biographies of educational leaders as expressions of the educational ideals of their periods. The first histories of education in English followed the work of Von Raumer as a model, the majority having been content to give accounts of educational leaders and their theories. Henry Barnard, in issues of the *American Journal of Education*, published contributions on the history of education, most of them being translations of parts of Von Raumer's work. A number of these articles from the *American Journal* were published in 1863 in a volume entitled *German Teachers and Educators*, this being probably the first history of education in English. A

similar volume on English educators was published in 1876. A work which was used well into the early years of the 20th century was Quick's *Educational Reformers*, published in 1868 and expanded in 1890. Other widely used texts appearing during the last decades of the 19th century were Browning's *Educational Theories*, Painter's *History of Education*, Williams' *History of Modern Education*, Munroe's *The Educational Ideal*, and Seeley's *History of Education*.

The history of education was not taught in France until late in the 19th century, and it too was influenced by Von Raumer. Gabriel Compayré, professor of philosophy at the University of Toulon, began the movement in France with a series of educational lectures, which resulted in his *History of Educational Theories in France*. His *History of Pedagogy* was translated into English by W. H. Payne, as were a few volumes of his series, *Pioneers of Education*. As a result of the Von Raumer influence, many of the courses in the history of education were taught in the United States under the title "Educational Classics", and were devoted to a study of the great educators and their writings.

The publication of Thomas Davidson's *History of Education* in 1900 marks a change in the method of writing educational history. This is the first English text which is not mainly biographical; rather it is an attempt to trace educational development as a phase of the development of culture and civilization. The most popular and influential textbook in the United States was Paul Monroe's *Textbook in the History of Education*, published in 1906. It attempted to show the relation between educational development and other aspects of the history of civilization, and to deal with educational tendencies instead of with men. It was the first real history of educational philosophy, but it did not neglect to make evident the relations of theory to practice. Its organization set the pattern for most of the books that followed. Monroe's work, like Ellwood P. Cubberley's *History of Education* (1920), made constant reference to source material; in fact both Monroe and Cubberley prepared collections of such source material to accompany their textbooks. Frank P. Graves, who wrote a three-volume *History of Education* in the years between 1910-13, also wrote in 1912 his *Great Educators of*

Three Centuries. More recent textbooks in the general field include Duggan's *Student's Textbook in the History of Education* (1927), Messenger's *An Interpretative History of Education* (1931), Eby and Arrowood's *The Development of Modern Education* (1934) and *The History of Education, Ancient and Medieval* (1940), Wilds' *The Foundations of Modern Education* (1936), and Knight's *Twenty Centuries of Education* (1940). In addition, many works have been written on the history of special fields of education; for example, S. C. Parker's *History of Modern Elementary Education* (1914) and more recently I. L. Kandel's *History of Secondary Education* (1930).

The history of education was one of the first subjects used in the professional training of teachers. For decades, along with psychology, philosophy of education, and methods of teaching, it made up the professional curriculum in teacher training. With the rapid development of the scientific movement in education after 1910, however, history and philosophy of education were gradually crowded out of the curriculum to make room for the newer professional courses. In our own country, history of education courses were limited largely to the history of education in the United States, making use of such texts as Cubberley's *Public Education in the United States* and Knight's *Education in the United States*. In the last few years, however, a new interest has developed in the history of education, particularly as an integration with the philosophy of education. The subject is rapidly returning to the curriculum, not as a mere survey of the development of educational institutions and practices, but as a study of the development of the educational theories and concepts that underlie changing practices, as a background for the interpretation of current issues and problems. There is a tendency to subordinate such matters as the development of school legislation and school administration, and to stress the development of the educational philosophies that have influenced educational practices through the centuries, evaluating these in terms of current needs and problems.

Educational leaders of today seem to agree that a thorough understanding of the historical and philosophical backgrounds of education is essential for any intelligent inter-

pretation of educational issues and for any effective participation in the solution of educational problems. A study of the educational ideas and practices of the past leads to an evaluation of those that have survived, and so prompts us to reject those that have outlived their usefulness. It helps us to become thinking educational workers, intelligently progressive in the selection of the aims, subject matter, and processes of modern education. It gives us materials to use in our own creative educational thinking, and develops within us certain valuable attitudes such as humility and patience. The study of what great teachers have attempted and conceived as possible should stimulate us to complete their work and carry out their ideas under the easier conditions and more favorable environment of today. It is an excellent introduction to nearly all professional educational studies. It contributes to the development of that professional spirit without which great achievements are impossible. It is of value not only as a professional study for teachers, but as a part of the general education of all. A study of the educational aspirations of mankind is one of the best approaches to a knowledge of the history of civilization, and an excellent approach to the study of the principles of social, economic, and political reform.

E.H.W.

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HOLLAND, EDUCATION IN — See NETHERLANDS, EDUCATION IN.

HOME AND SCHOOL COOPERATION. The desirability of developing mutual confidence and active collaboration between home and school has been increasingly recognized in recent years. Emphasis upon considering the "whole child" as an integrated person has inspired efforts to insure a community of aims and methods among all who deal with children.

In many instances, though by no means invariably, the movement toward better home and school cooperation has been initiated and promoted by educators rather than by parents. This has been due partly to specific attitudes

of submission to or rebellion against school authority, engendered in parents early in their own school experiences, and partly to discrepancies, both real and apparent, in information and general educational background between laymen and professionals. In recent years, attempts have been made to place home-school relationships on a more reciprocal basis, first, by acknowledging the fact that parents as well as educators have many contributions to make to the common aims of both groups, even though these contributions may be very different, and, second, by pointing out that the work of the school is hampered and the child confused if home and school are using widely different methods.

In general, efforts to secure home and school cooperation, whether undertaken by schools or by parents, in groups or as individuals, fall under two main headings: (1) sharing information and insight regarding children and (2) participation in common activities. School administrators and teachers frequently wish to secure a great deal of information from parents regarding their children's physical, emotional, and social development. Home visiting by teachers, partly for the purpose of obtaining information, is encouraged in certain schools and occasionally even required. In other schools, visiting teachers or specialists in parent education serve as liaison officers between home and schools; at times the use of *grade advisers*, teachers who act as consultants for both the children of a certain grade and their parents, is found. In some schools an elaborate system of records embodying all this material is maintained.

The information which parents wish from the schools may be factual regarding a child's progress or it may be an interpretation of the general educational goals and methods characteristic of the school. The differences, sometimes profound, which exist between educational policy as it is today and as it was when many parents were themselves in school have created a great need for interpretation of this kind. Bulletins, individual conferences, grade meetings, children's assemblies, opportunities (such as "Open School Week") to visit and observe the school in action, all serve to increase a parent's understanding of his child and of his school.

Areas in which information shared by

schools and parents has been successfully utilized for the benefit of children include health and safety measures, the wise planning of a child's day as a whole (including the time spent in doing "homework"), and the recognition and development of special aptitudes.

Participation in common activities occurs when parents and teachers are aware of its advantages and when school equipment, facilities, and personnel are put at the disposal of parents and other groups within the community, as is frequently done in rural areas, and increasingly in cities as well. Participation by parents in school projects rather than community projects, however, is the chief manifestation of activity shared by home and school. The contributions of comparatively untrained parents to the work of the school may include clerical assistance in the office, service as hostesses for visitors, assistance in the library, dining-room, or playground, assistance on class excursions, preparation of materials for the teachers' use, and carrying on charitable activities for underprivileged children in the school or neighborhood. Parents with more specialized training of some sort may teach art or dramatics, or serve as psychologists, social workers, architects, or landscape gardeners.

Participation in common activities has been found to be a valuable means of breaking down barriers which sometimes exist between teachers and parents because of differences in economic position, social status, or educational viewpoint. Thus far, however, participation has been most frequent and intensive in schools where the community of interest between teachers and parents is already great. Such instances afford a good opportunity to expand social, health, and recreational opportunities in the community for adults as well as children. A few private schools which are parent-organized or even parent-owned have served as leaders in achieving a high degree of mutual action by home and school on school policies. At the other end of the scale are schools which maintain contacts with parents only when serious disciplinary problems arise.

In a great many schools, the chief agency for carrying out a program of home and school cooperation is a *parent association* of some kind. The term "parent association"

may refer to any association connected with a school in which parents are included as members, or it may refer to an association of parents only, as distinguished from a *parent-teacher association*, which includes teachers also. The greater freedom from domination by the school which may exist in organizations of parents only is thought by some leaders to be an advantage. Many of the parent-teacher associations in this country are affiliated with the National Congress of Parents and Teachers; the largest federation of parents' associations in any one city is the United Parents' Associations of New York City.

Local organizations vary greatly with respect to their membership, their activities, and the degree to which they have the support of their communities. Much of the initiative in home and school activities has been taken by mothers; yet the tendency for fathers to take an active interest in school affairs has been rapidly increasing. In some cases associations are oppressed by stereotyped or too diffuse programs, cumbrous organizational details, or political domination; many, however, have made genuine contributions to home and school cooperation. In addition to their activities along the lines already discussed, parent associations frequently are active in protecting the financial interest of their schools. They have in some instances succeeded in exerting pressure on their communities for more adequate equipment and facilities of various kinds, and in arousing a more highly developed sense of the community's responsibility to its children. B.B.L.

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HOME ECONOMICS, TEACHING OF.

Home economics is concerned with the development of satisfactory personal and family living. The areas it includes—Family and

HOME ECONOMICS, TEACHING OF

its Relationships, Family Economics, Food and Nutrition, Housing, and Textiles and Clothing—are indicated by the divisions of the American Home Economics Association, the professional organization of home economists. The particular phases to be undertaken by a given group are determined by the level of maturity and the needs and interests of its members.

Few subjects in the curriculum have appeared under so many names as has this one. Beginning in the 1870's as cooking and sewing, assuming more dignity as domestic science and domestic art (or grouped under the more inclusive term of domestic economy), household arts, or household science, the subject has finally become known generally as home economics. Other titles, such as home arts, homemaking, or family-life education, are sometimes used to indicate a particular approach, but even in these cases the content material is that of home economics.

Home economics is a field rather than a subject; it draws from the natural and social sciences and from the arts the principles which it applies to problems of food, clothing, housing, and home management. As early as 1902, leaders in the field recognized its functional character in the following definition: "Home economics in its most comprehensive sense is the study of laws, conditions, principles, and ideals which are concerned on the one hand with man's immediate physical environment and on the other with his nature as a social being, and is the study especially of the relation between these two factors. In forming a complete definition, however, it may be possible to consider home economics as a philosophical subject, a study of relations, while the subjects on which it depends, economics, sociology, chemistry, hygiene and others, are empirical in their nature and concerned with events and phenomena."

When first introduced into the schools, home economics was too often considered a special subject. With growing recognition of the family as the basic unit of society and of its influence on the development of personality, training for home living is considered an increasingly essential element in general education. This change is reflected in the course offerings in schools. In the elementary

grades, boys and girls together are introduced to homemaking activities and learn to accept responsibility for their share in home life. In many high schools an introductory course dealing with a variety of phases of homemaking develops an ability to meet personal and family life situations. In some cities the home economics teacher is responsible for units dealing with family living, which are included in the core curriculum or are incorporated into a course required of all students, both boys and girls. College courses dealing with problems of marriage and family life have been developed either in the home economics department or through the co-operation of several other departments.

In addition to its contribution to general education, home economics provides training for such specialized tasks as selection, buying, preparation and serving of food; selection, buying, care, and construction of clothing; furnishing, equipment, and care of the home; management and use of personal and family resources of money, time, and energy; protection of health and care of the sick; development and care of children; and social relationships within the home. Invention and research necessitate constant changes in content and method of home economics, while social, political and economic conditions bring shifts in emphasis. A significant example of this is the increasing attention given to problems of consumption, as goods and services produced outside the home replace those formerly secured by the direct efforts of members of the family. Another is the adjustment called for during a major depression or a war in order that the best possible contribution to family and community welfare may be effected.

Beginning with the Smith-Hughes Act in 1917 and continuing through the George-Deen Act in 1936, laws were enacted which enable the federal government to assist the states with the promotion of home economics as the branch of vocational education training for the vocation of homemaking. This aid has made it possible to introduce and maintain work in home economics in smaller communities and has helped to raise the standard of teaching. A valuable feature of classes in vocational homemaking is the inclusion of home experience or home practice carried on by each student under the direc-

tion of the teacher. (See also CONSUMER EDUCATION.) F.L.S.

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HOME ROOM. The home room, a modern development of the "report room" or "official class," has become in recent years an important element of the modern secondary school and, to some extent, of the larger elementary school.

The purpose of the home room plan is to play a part in the school's plan for complete guidance—mental, physical, social, spiritual, and vocational. The home room does not accept responsibility for all of these forms of guidance (*q.v.*), but it supplements and applies much that is learned elsewhere, both inside and outside the school. The home room is not the only setting for guidance, but it is a most important one, especially where guidance is decentralized from a one-office to a many-teacher job.

The home room is based on the assumption that the teacher or "sponsor" learns to know his group (25 to 35 students) intimately, and hence is able to recognize, evaluate, and develop individual interests and capacities. The trend in the direction of the "permanent" membership plan—in which the teacher has the same students throughout their entire school life—obviously makes this personal relationship all the more profitable. In the home room the student himself becomes the "subject" that is studied, and the teacher becomes a guiding personality.

Because of the newness of the home room idea there is still considerable variation in procedures. Usually at least one full period a week is devoted to home room activities. Shorter periods, used for administrative purposes, are really not home room periods at all, merely "report room" periods. All peri-

ods of the day are utilized for the home room, but apparently the most suitable are, in this order, the first and second periods in the morning and the first after lunch.

In assigning students to home rooms many bascs arc used, such as intelligence or other quotients, curriculum, teacher or student selection, etc. The trend is toward assignment only on the basis of class, for then each room represents a cross section of a particular school-age level.

The home room implies a democratic setting, and practically all home rooms are organized with the usual student officers and committees. Often the school's student council is composed of representatives elected by the various home rooms.

The formal programs of the home room may be classified into three groups, namely, guidance, seasonal, and "free choice," although these are not mutually exclusive. Guidance programs usually represent more or less formal material and provide a definitely organized and continuous "course" throughout the student's school life. This material comes from books and manuals, often developed by the school staff. There is no great agreement concerning the types of guidance most appropriate for particular school grades. Orientation is emphasized in the first term, but occupations, courtesy, thrift, safety, recreations, citizenship, etc., are scheduled in all years.

Seasonal programs are those that are appropriate at particular times during the year—Thanksgiving, Fire Prevention Week, etc. Most of the material for these programs is usually developed and presented by the students themselves.

Free choice programs, which represent open dates, are generally originated, developed, and presented by the group itself.

Many home room programs are really miniature assembly programs and it is a common practice to incorporate them either as a whole or in part in the general school assembly. The home room program offers an excellent opportunity for student comment, discussion, criticism, evaluation, and personal application.

Other home room activities which are commonly scheduled are: home room responsibilities, each room is assigned for a definite period such tasks as assisting in the library, supervising bicycle parking, etc.; home room

HOME WORK

initiatives—each room originates and develops a particular task; competitions—both within the room or between rooms; inter-room visitation; and individual interviewing and counseling.

In elementary schools which are organized along the lines of the activity program (*q.v.*), these functions of the home room may become part of the regular day's work of the class, especially in those periods referred to as "Opening Exercises," "Morning Conference," etc.

Nearly all schools make serious attempts at evaluating the home room by means of critics' reports, informal discussion, formal rating blanks, participation improvement charts, and other devices.

The most common dangers and weaknesses of the home room are: (1) underemphasis or faulty emphasis—a failure to understand and appreciate the potentialities of the setting; (2) incompetent, unsympathetic, and untrained sponsors—not all teachers are competent to sponsor home rooms, although the general policy is to assign all teachers to this work; (3) formalization—making the home room a formal class in guidance; (4) informalization—allowing a looseness that results in nonvital and unorganized programs and activities; (5) blind and slavish copying of programs and activities; and (6) a failure to evaluate. (See also GUIDANCE.) H.C.M.

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HOME WORK. As generally interpreted by pupils, home work is limited to the written assignment to be handed in the next day or at the next class meeting. It may consist, for instance, of a number of problems to be solved or a theme of so many words to be written. Of course, home work properly applies to any preparation not completed during the class period. As a rule, home work

increases in amount with each advance in grade.

Home work is looked upon with disfavor by many educators, and some schools have longer class periods so that work ordinarily assigned for home study can be done in school under proper conditions and expert supervision. The objections to home work are based on many grounds: conditions at home are often not conducive to good work; students look upon it as a chore and see no objection to merely copying the work done by their classmates or to persuading an older brother or a parent to do the assignment; home work deprives the child of time that should be available for other purposes; and home work is inefficient, for the time consumed is often disproportionate to the value gained. If the home work assignment consistently requires the student to use processes and materials new to him and for which he has not been prepared, it often results in misconceptions and the making of so many errors that much time is spent at the next session of the class merely in correcting the errors made at home, errors that could have been prevented by sufficient preparation in class.

Where home work is used effectively, it is assigned when needed and not as part of a daily or weekly ritual. The amount of home work is controlled so that it does not make excessive demands on the student's time. If the type of home work assigned varies with the child's needs and the nature of class activities, the ritual of a daily written assignment falls into disuse. In such a class, a home work assignment may consist of reading a short story so that the class time may be used for discussing the story. Another may lead the student to listen to a radio forum to be broadcast that evening, and a third may have the student editing a story or a poem he has written. A good home work assignment grows out of motivated and directed activity and enables the students to carry that activity forward at the next class meeting. Properly used, the home work assignment is of considerable value in teaching students how to study. To meet these ends, a good home work assignment will make certain that students know *what* they are expected to do, *how* they should proceed, and *why* they should do the assignment. (See ASSIGNMENT.) F.A.B.

HOMEMAKING EDUCATION — See HOME ECONOMICS, TEACHING OF; VOCATIONAL EDUCATION.

HOMOGENEITY. Homogeneity refers to the extent to which the members of a group are alike with respect to a single trait or a number of traits. Thus, when pupils are arranged in classes according to some plan of homogeneous grouping (See CLASSIFICATION OF STUDENTS), the pupils in a given class are so selected as to be as similar as possible in such a trait as mental level, school achievement, or interest in painting. How great a degree of homogeneity there must be before the group can be considered as homogeneous varies with the purpose for which the group has been selected. In educational administration, a class may be regarded as homogeneous when the range of ability is as small as is possible under the circumstances. When three sixth-grade classes are to be organized in a school, the principal will believe that he satisfies the principle of homogeneous grouping so far as mental level is concerned if he has the third of the pupils with the highest mental ages in one class, and the third of the pupils with the lowest mental ages in another class. Within any of these supposedly homogeneous classes there will still be a considerable variation in mental ages. In educational research, however, the standards set for homogeneity are much stricter than in ordinary school practice.

Homogeneity demands uniformity or close similarity on the part of members of a group with respect to a specified characteristic or trait. For example, fifth-grade pupils are homogeneous with respect to grade placement in school and children twelve or more but not yet thirteen years of age may well be considered homogeneous with respect to age.

Homogeneity must be specific, in the sense that it applies to only one characteristic or trait at a time or to several, but not many, characteristics or traits taken in combination. With each trait or characteristic added to the requirements, the number of persons meeting the desired conditions becomes smaller in a given total population. For example, there are many twelve-year old children in the United States but only a fraction of them live in New York City; only a fraction of the twelve-year olds living in New York City are in the ninth grade in school; a still smaller number of

twelve-year old New York City ninth-graders are boys; still fewer twelve-year old New York City ninth-grade boys are taking technical courses; and an even smaller number of twelve-year old New York City ninth-grade boys in technical courses have intelligence at the genius level.

When homogeneity is attained in one trait or in a small number of characteristics for a group of persons, heterogeneity is certain to exist for most other traits or characteristics. There is, therefore, no possibility of obtaining a group homogeneous in general, but only of so selecting a group that its members all satisfy at most a few desired conditions.

Range of talent, or variability, refers to the degree of homogeneity or heterogeneity existing among a group of persons with primary regard to the effect upon test scores. For example, pupils in the fifth grade might be expected to score within certain limits on a general achievement test, but the limits within which pupils in the fourth, fifth, and sixth grades might be expected to score would be considerably further apart. In general, correlation coefficients are lower when the range of talent or variability of the group is small than when it is large. (See CORRELATION.) Similarly, reliability coefficients (See RELIABILITY), which are merely special applications of the coefficient of correlation, are smaller when the groups of pupils are homogeneous than when the groups of pupils vary more widely in important traits or characteristics. J.R.G.

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HOMOGENEOUS GROUPING — See CLASSIFICATION OF STUDENTS.

HONOR SYSTEM. An agreement by students to assume major responsibility for keeping their conduct within the bounds of accepted morality. Applied most commonly to examinations, the honor system allows teachers to leave the class without proctors. Infractions are reported by students to their own disciplinary board. The use of honor systems is more common in colleges than in secondary schools.

Although the honor system has been used

HONORS COURSES — HOUSE PLAN

as a means of developing desirable character traits by encouraging the students' sense of responsibility and by appealing to the desire for social approval rather than fear of punishment by the teacher as the basis for good behavior, the honor system has not been without its critics. As usually employed, the honor system has not paid sufficient attention to the assumption of responsibility by the individual student. As these critics point out, all that the introduction of the honor system has done in many instances is to substitute a roomful of student proctors for a single teacher proctor, a change that may have little significance for character education unless it is accompanied by a realization by each student of his own responsibility for his personal behavior. Moreover, the students who constitute the court which usually tries offenders rarely have the understanding or the maturity which is needed if they are to participate effectively in the reeducation of the student who has abused the confidence of his teachers and his classmates. The honor system is, therefore, no universally applicable aid to character education; its educational value depends very largely on the school's readiness and ability to use the opportunities it presents for stimulating the development of the students' character. G.E.H.

HONORS COURSES. In English universities honors courses, which require a relatively thorough study of one field for a student's entire college career, are distinguished from "pass" courses, which require much less thorough study of several subjects. Although a few American colleges offered honors courses in certain fields previously, Swarthmore College drew nationwide attention to them when it developed them successfully beginning in 1922. Today more than one hundred and fifty American colleges offer them in one or more fields. They are characterized by their enrolling only students of high ability, and often also by relatively individualized instruction, infrequent class meetings and examinations, a long term of a year or two, concentration upon one field of study, and the use of examiners from sister colleges.

The chief advantage seen in honors courses is that they "break the lock-step" and permit able students to be taught faster and more than do traditional courses. They have also

led the way not only toward experimentation in curriculum and examination, but especially toward freer, more truly individualized instruction. The latter contributions are obviously of permanent value.

Some dissatisfaction has arisen over the relatively narrow specialization in honors courses, a feature which may be avoided to some extent if a student takes honors work for only part of his time along with the study of two or three other fields. Most criticism, however, has been concerned with the principle of segregation of the able students. Such segregation tends to emphasize doubtful standards of worth, as well as extrinsic incentives which many educators believe should be minimized. (See LIBERAL ARTS COLLEGE.)

M.G.F.

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HORIZONTAL ORGANIZATION OF SUPERVISION—See SUPERVISION OF INSTRUCTION.

HORMIC PSYCHOLOGY — See PSYCHOLOGY, SCHOOLS OF.

HOUSE PLAN. The house plan is modeled after the "college" plan of English universities. Exemplified chiefly at Harvard and Yale, where "houses" were made possible by the gifts of Edward S. Harkness, it breaks a large college into smaller units, in which students are more likely to feel a community spirit and to have access to a full round of college activities. Each house is a connected series of residence halls for several hundred students. In order to have a distinct community spirit, the houses are usually grouped around quadrangles, with but few outside entrances. Each house is equipped with a dining hall, a library, lounges, faculty quarters, and perhaps a garden. It may also own space and equipment for athletics.

The plan has been notably successful. Surveys have shown that many more "house" students than others associate intimately with faculty members; attend intellectual discussions; use a library daily; and take part in social affairs, inter-house athletic contests, and other extra-curricular activities. Such

results may be partly due to the attractiveness of the houses and to the practice of scattering the members of a fraternity in several houses so that they seldom segregate themselves. The plan seems to have few, if any, disadvantages if students are encouraged to become acquainted with the college as a whole through campus-wide courses and functions. Its chief benefits seem to be available to almost any college which can make its dormitories somewhat isolated and largely self-supporting. (See LIBERAL ARTS COLLEGE.) M.G.F.

HOUSEHOLD ARTS—See HOME ECONOMICS, TEACHING OF.

HUMAN GEOGRAPHY—See GEOGRAPHY, TEACHING OF.

HUMAN RELATIONS, COMMISSION ON (Progressive Education Association). This commission was established in 1935 by the Progressive Education Association. Its primary objective was to study ways and means of helping young people and their parents to gain a better understanding of some of the problems of human living which exist in the modern world, and to attempt to reveal the motivating forces underlying certain types of human behavior. The studies also included the impact of the various social institutions upon the individual and the consequent effects upon human relations and behavior.

The activities and contributions of the commission can be grouped in three general categories: (1) the publication of a series of books, (2) the production of a series of motion pictures, and (3) the presentation of two series of radio programs relating to the problems of group living in a democracy.

The books published by the commission are intended for use by teachers, parents, and students. The content of several of the books consists of problems growing out of the changing needs of youth, the place of the family in the development of desirable social relationships, and the function of various institutions and areas of knowledge in the establishment of better understanding among individuals and groups in a democratic society.

The production of a series of motion pictures grew out of a project started by a committee of the Motion Picture Producers and

Distributors of America, which asked the commission to take over and extend the work begun by the committee. The commission selected from regular motion picture production those scenes and sequences which would best serve as examples of typical human relationships. The scenes were then organized into separate films, or units, to be used for educational purposes. Over fifty excerpts were made, covering a wide range of human behavior from the time of early childhood to maturity, and representing many of the types of relationships an individual would encounter in the course of a lifetime. *The Human Relations Series of Films* is described in a catalog published by the Commission, containing synopses, sample student discussions, student reactions to the use of films, and a preface of human needs.

One series of thirteen radio programs was presented by high school students on the American School of the Air program sponsored by the Columbia Broadcasting Company, and consisted of discussions of typical human relations problems. In 1938 another series of programs was presented. This was a full year of broadcasts on *Frontiers of Democracy*, and was also a part of the American School of the Air series. These programs dealt with some of the basic social and educational problems of our time and discussed such topics as housing, the use of science, juvenile problems, education in a democratic as compared with a totalitarian state, and the contributions youth can make to the solution of social problems.

The commission accepted the basic concept that if young people are to function democratically they need an education that will assist them in solving those problems which concern them most directly. These problems are usually related to, or grow out of, the relationship with other individuals or groups in our society. With the increasing complexity of our social structure and organization, students need to know more about the motivating forces of human behavior and activity, in order better to adapt themselves to changing conditions. Since democracy is essentially a plan of human relations, youth should be guided in such a way that they develop better ways of relating themselves to others. The values of democracy should be stated in terms of the welfare of individuals and groups. To achieve success in effec-

tive human relations is to further the cause of democracy itself. The commission through its activities has attempted to indicate ways in which these objectives may be realized.

E.O.N.

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HUMAN RELATIONS, INSTITUTE OF—See POST-DOCTORAL EDUCATION.

HUMANISM. The educational movement known as humanism derived its initial impetus from the revival of learning during the Renaissance. This renaissance does not mean that learning in the preceding period had been in a state of suspended animation but rather that the new education stood in sharp contrast to it. While the older education had been authoritarian and preoccupied with the supermundane, the new education was really a rebirth of classical learning with its spirit of inquiry and its greater emphasis on mundane affairs. Genetically, then, the spirit of humanism is older than its name. But even the name had historical roots, for humanistic education referred to a renewed interest in that type of education which classical times had noted for its *humanitas*, an education which befitted man in all his dignity, in short, a liberal education.

Although liberal in conception, humanistic education soon developed an indigenous form and content, the significance of which is not spent even in the twentieth century. Because what classical culture had to contribute on the physical, moral, and intellectual development of man was locked in a purer Latin than the corrupted form preceding the Renaissance and even more securely locked in Greek, which was almost unknown in Italy at that time, humanistic education inevitably became identified with a study of these ancient tongues. Indeed, these two languages are often referred to as "the humanities." It should not be surprising, therefore, that humanistic education became literary in character, and that it aimed at taste and elegance

of style. This æsthetic influence, however, was greater in Italy than north of the Alps where the humanities were studied as instruments of social and religious reform as well.

Offshoot of liberal education though it was, the humanistic spirit was not welcomed at first in the medieval university where up to this time the study of the seven liberal arts had centered. Consequently, it was necessary to establish new schools where the new learning might flourish. These schools, known as humanistic schools, became rivals of the universities and ultimately the pattern for European and American secondary schools. It is from this historical root that Latin, and, to a less extent, Greek have received nourishment in secondary school curricula right down to the twentieth century. The typical method of instruction in humanistic schools was the prelection so highly developed by the Jesuits in their humanistic *ratio studiorum*.

While at its best, humanistic education aimed at *sapiens atque eloquens pietas* (wise and eloquent piety), at the physical, æsthetic, social, and intellectual as well as the moral and religious development of man, at its worst, it became a narrow study of language alone. Not only did it become restricted to literary form but, at the depth of its degeneration, it became a study of the style of one author, Cicero, so that even to this day "Ciceronianism" is a title of reproach. Furthermore, so narrow and even disciplinary did it become, that the Latin grammar school which taught the humanities in English speaking countries came to teach little more than what its name implies.

In the seventeenth century, an attempt was made by the humanistic realists to rescue humanistic education from its narrow formalism and to base the study of the humanities again on the substance they could contribute to the contemporary life of the time. The movement, however, did not widely affect the schools. A strong neo-humanistic movement at the end of the eighteenth and in the early nineteenth centuries put stress on recapturing for the schools not so much the languages of antiquity as the free spirit of inquiry so notable in Greek culture.

But the major attention in the nineteenth as well as the twentieth centuries has been focused on the contest which humanism has long waged with naturalism. The point at

issue has been whether literary or scientific studies are of greater importance in a liberal education. The division of studies into human and physical, however, has resulted in a dualism difficult to resolve. It is preferable, some say, to realize that the rapid growth of such social sciences as anthropology, economics, and sociology are developing a body of materials which will not fit under either of these headings because they connect man's life with natural conditions. Therefore, the schools should be concerned with the common background in which humanistic and naturalistic studies are united.

This close union of humanism and naturalism also demands mention of the fact that in the twentieth century some associate humanism with the self-sufficiency of man and his independence of the supernatural. Thus pragmatism (*q.v.*), the philosophy underlying much progressive education, goes by the name of humanism in some quarters.

J.S.B.

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HUMANISTIC REALISM—See **REALISM**.

HYGIENE AND HEALTH EDUCATION. Health education is the process of instruction in the preservation of those qualities enabling individuals to live a full, satisfying life physically, mentally, and emotionally. This definition carries us beyond the realm of many of the narrower concepts often held and recognizes the child as an individual with a complicated system of mutually dependent organs.

It is upon such a philosophy that curricula in health education and hygiene are developed and goals established. Such programs include instruction in all phases of physical, mental, and emotional health. Scientific information is given in the preservation of health through its personal application to the individual. This phase of health education is called *personal hygiene*. In order that the

student may apply his knowledge to his everyday living experiences he must be acquainted with the hygiene of all the organs of the body. This implies a thorough understanding of the anatomical and physiological backgrounds and the functioning process of the organs.

Community hygiene includes instruction in the health program of the community; how it is promoted and maintained so that it contributes most to the welfare of each individual and to the community as a whole. In essence this is the responsibility of public health departments which are concerned with such matters as preventable diseases, including those that are acutely communicable, venereal, and of a tuberculous character; the hygiene of the individual including maternity, infant, pre-school, and school hygiene; and general and specific sanitation.

Industrial hygiene has assumed greater significance during recent years. It is the science of the preservation of life through the study of health hazards in industry. In general this involves problems of building sanitation, safety education, and industrial diseases.

School hygiene has come to mean the health implications of building location and construction; heating, lighting, and ventilating; construction of the school program to avoid health hazards; general safety; and sanitation.

The term *sex hygiene* and *social hygiene* are too frequently used synonymously. *Sex hygiene* is the science of living healthfully for the purpose of reproduction. *Social hygiene* is the science of living healthfully with one's associates. This has broader connotations than sex relationships. It might involve tuberculosis, scarlet fever, or pediculosis. At the same time the term *sex hygiene* is somewhat limited in that it does not take sufficient account of boy and girl relationships outside of actual reproduction implications. It might be better to employ both terms, namely, *sex hygiene* and *social hygiene*, provided that each is used in its distinctive meaning.

Hygiene and health education are both closely related to physical education. It is quite generally accepted, in fact, that the health and physical education program in school systems should be combined under one administrative head. Physical education makes

HYGIENE AND HEALTH EDUCATION

a definite contribution to the organic vigor and neuro-muscular development of the individual. Furthermore, it offers splendid opportunities for mental and emotional health through its varied program of sports and games. It offers individual help in health through corrective exercises and orthopedics under the guidance of proper medical authorities.

Health education has not advanced as rapidly as have some other phases of education in testing and measuring the results of health programs but progress is being made. Until quite recently physical education teachers who have usually been the ones charged with the responsibility for conducting health programs have had little preparation for this work in teacher training institutions. This situation is rapidly being remedied. It is reasonable to expect that with improved teacher preparation will come better school health programs, properly organized and administered, and scientifically evaluated.

Health education as an integral part of the school curriculum: Health education is often referred to as a school subject. This is erroneous. Health education is not a school subject but a part of the general school curriculum inextricably interwoven in the pattern of the child's everyday living experiences. It should neither be departmentalized nor compartmentalized.

The physical health of the child is promoted through healthful school living, health service, health instruction, and wholesome physical activities. Healthful school living presupposes a school environment that allows for scientific heating, ventilating, lighting, cleaning, and safety measures; a school organization that fosters a hygienic program of instruction giving due consideration to schedule making, rest periods, school lunches, individual differences, and time allotments; provision for the services of specialists who can examine students and detect health conditions that need correction; and a teacher-pupil relationship that promotes a sympathetic and understanding attitude on the part of the teacher concerning fatigue, discipline, physical examinations, follow-up work and the correction of remediable defects, and protection against communicable diseases.

All of these relationships to the health of the child have definite educative implications.

The school health education programs fails unless it makes full use of all health related aspects of the school curriculum in organizing its instruction. Having embraced these opportunities to improve the health knowledge, habits, and attitudes of the child, the school organizes health instruction as follows:

Elementary school health programs include indirect, incidental, correlative, and direct instruction. Direct instruction is given only in proportion to the elementary school child's capacity for assimilating factual knowledge. The program is built around the child's everyday living experience and is not developed merely to supply health facts.

The junior high school follows the same general plan with increased emphasis on direct health teaching. Since many children leave school at the completion of the ninth grade, they should have an adequate amount of scientific health knowledge to live successfully and happily in their community.

The problem of health instruction in senior high schools is more difficult than on the two lower levels. Ideally if the program has functioned successfully in the elementary and junior high schools the senior high school student should be in a position to appraise his own health needs intelligently and, with sympathetic guidance, to attain his health goals. Such a Utopia has not as yet been reached universally largely because of inadequate teaching personnel, inadequately trained teachers, and economic factors beyond the control of the school. The health counselor or health coordinator plan seems to be the best so far devised but is operative only where there are a well-trained person, adequate school funds, and unlimited community resources for the correction of physical defects.

"Health lectures" on the gymnasium floor are ineffective. Anatomy and physiology classes with but few exceptions do not meet students' health needs adequately. Interest wanes because hygiene courses often duplicate material covered in home economics, biology, chemistry, and physics. Individual guidance under a skilled health coordinator seems to bring results but, as stated, the obstacles in the way of inaugurating such a program are often times insurmountable. (See also HEALTH.)

V.S.B.

HYPEROPIA — HYSTERICAL MUTISM

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HYPEROPIA—See VISION.

HYSTERICAL MUTISM—See SPEECH CORRECTION.

I

I. Q.—See INTELLIGENCE QUOTIENT.

IDENTICAL ELEMENTS—See TRANSFER OF LEARNING.

IDENTIFICATION. Identification is the process of envisaging oneself as playing the rôle of someone else and sharing vicariously in his success and prestige. It is the tendency of identifying oneself with the objects, persons, or organizations of one's admiration and interest for the purpose, conscious or unconscious, of gaining security, recognition, and power; and becoming like those whom one respects and admires. The young son may identify himself with his father, whom he regards as a wonderful person. This serves as a powerful stimulus toward emulation of the father. In his play the child identifies himself with the rôle he enacts, be it teacher, preacher, doctor, engineer, or racketeer. The adolescent acquires a feeling of superiority by identifying himself with an exclusive club or fraternity or his school. The hero of the novel, movie, or daydream often is conceived as the subject himself.

While the process of identification may be a harmless indulgence, it often proves to be one of the most important factors in the child's cultural development in that it will stimulate him to emulate the worthy patterns of conduct and achievement of superior persons. On the other hand, it may prove a detrimental influence in that the individual may imitate low patterns of behavior; he may be satisfied with mere imaginary achievements; and he may use the mechanism as a substitute for action, or as a retreat from reality, as in the daydream. (See MENTAL HYGIENE.)

J.E.W.W.

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IDENTIFICATION TEST—See OBJECTIVE TESTS AND EXAMINATIONS.

IDIOT—See MENTAL DEFICIENCY.

ILLITERACY. The exigencies of war ordinarily focus attention on educational inadequacies. Among the problems of general concern in 1917-18 was that of illiteracy, and it was again brought to the fore in 1940 through the refusal of the Army of the United States to draft men having less than fourth grade education. These latter in the age group 18-44 numbered 1,458,540 or 5.3 per cent in 1940. According to the 1930 census 4,283,758, or 4.3 per cent of those 10 years of age and over had no education whatever.

Figures based on previous schooling or on a statement of ability to read and write inadequately reflect the size of the literacy problem. Education varies in quality from region to region and schoolroom to schoolroom, and no measure of childhood education is ever an adequate index of adult needs. A simple statement of ability to read and write is a measure of technical skill but not of functional capacity. Various literacy tests have been devised, some for voting; but to date there has been no satisfactory test of functional literacy, and thus no statement of the problem.

Although the narrow demands of war create the emergency which brings literacy into focus, the latter is really more important to peaceful social living, and should be of primary consideration in preparing the people of the United States for intelligent participation in the post-war world. The smooth functioning of every society depends partly on the tools that the society forges for developing the individual's understanding of his fellows. The compact tribal community had no need of any tool except conversation. But today when the community is 2½ billions of people the tools must of necessity yield rich and full vicarious experiences. It is common to point to newly developed instruments of

communication as having brought the people of the world closer together. Awareness has been mistaken for understanding, as is attested by the World Wars of the 20th century. Until the radio and motion picture—or perhaps some yet undeveloped media—have been perfected, they will stand secondary to the printed word as effective tools for use in understanding one's fellows.

In the United States there have been two movements designed to cope with illiteracy. One is the literacy or elementary education movement concerned primarily with foreign born adults, but with opportunities for study ordinarily extended also to the native born. Classes in elementary English for adults (under a variety of names) have been supported on a state-wide basis by more than half of the states, and by a good number of local communities. Part of the funds appropriated for adult education under the various Federal emergency acts of the 1930's have been devoted to literacy classes. Although elementary education for adults has existed in the United States since the time of the colonial evening school, it has been emphasized only since the first world war.

The other movement which was planned to develop functional literacy is even more recent and is still in the embryonic stage. This is the move to simplify reading materials so that those adults with limited knowledge of the tool subjects may still be socially literate. A few simplified books have already been published, and experiments are going forward at the Readability Laboratory at Columbia University.

Both of these movements, though excellent in their way, must be considered as stop-gaps. On the one hand, there are many pieces of literature, particularly in the sciences, which cannot be simplified without losing brevity and precision of definition. On the other hand, there is a grave question whether it is not wasted time and effort to develop language skills in men and women who have no formal education. As a rule, adults who have not yet mastered the mechanics of the reading process when they enroll in elementary classes rarely master language skills well enough to read easily. This failure is due

not so much to decline in mental ability as to lack of adequate motivation for the sustained effort that is necessary for learning to read. Language skills whether in conversation, reading, or writing are mastered more easily if periods of practice are short but regular in occurrence. A reading lesson a day is ordinarily essential for most effective teaching. Adults usually do not have this time to devote to school, and their learning suffers. Furthermore, they are using valuable time which ought to be given to consideration of those social problems which can be solved only by mature men and women.

Certain of the South American countries have met the problem of their illiterate masses by adult education which dispenses with printed instruction and uses instead lecture and demonstration. This system has proved extremely effective in meeting the urgent need of Indian populations for instruction in such subjects as modern hygiene, scientific agriculture, and community planning. Ingenious as it is, it is recognized by those who use it only as an emergency measure, for any such scheme is valid only so long as leaders of integrity are in power. Every democracy must eventually face the necessity for creating a social vigilante out of every member of society.

Granted that perfecting the tool of literacy to the point of functioning in the modern world is preferable to any process of simplification of reading materials or literacy education, then adult literacy in the United States comes within the province of the elementary school teacher of children and the adequate support of public education. The problem of the illiterate Negro and poor white of the South, the Spanish-speaking person of the West, and the farm population of all states is that of Federal support for education (*q.v.*), which will be apportioned according to ability and effort of the states to support education. This leaves only the foreign born illiterate as the special charge of the adult educator. The ideal adult school of the future is one in which a working knowledge of the fundamentals will be assumed of all the native born, and men and women in the school may devote their time to use of those fundamentals in acquiring greater social skills.

Statistics on Illiteracy:

U.S.A.: Census of 1930— 4.3% of total population
 10 yrs and over
 1.5% of native whites
 9.9% of the foreign born
 16.3% of Negroes

Comparison with earlier years (Total Population
 10 years and over.)
 1870.....20.0
 1890.....13.3
 1910..... 7.7
 1920..... 6.0
 1930..... 4.3

Ranges by States

(Total population 10 years and over.)

<i>Lowest</i>	<i>Highest</i>
Iowa 0.8	South Carolina 14.9
Washington ... 1.0	Louisiana 13.5
Oregon 1.0	New Mexico . 13.3
Idaho 1.1	Mississippi .. 13.1
Utah 1.2	Alabama 12.6

Foreign Countries:

(According to *Department of Commerce Foreign Commerce Yearbook, 1936*).

NOTE: Definitions of illiteracy vary among other countries.

Brazil:	70% (estimated)
Chile:	25% (estimated in 1930)
Denmark:	practically none
France:	7% (unable to read or write over 5 years of age, 1931)
Italy:	21% (unable to read over 6 years of age, 1931)
Japan:	10% (excluding children under 7)
Mexico:	54% (estimated in 1934)
Netherlands:	practically none
Spain:	43% (unable to read or write over 10 years of age, 1930)
Sweden:	practical none

G.A.W.

ILLUMINATION — See **LIGHTING, SCHOOL**.

IMBECILE—See **MENTAL DEFICIENCY**.

IMITATION IN LEARNING AND TEACHING. Whether we look at children or whether we look at adults, we see that people sometimes imitate those around them and sometimes they do not. Sometimes this imitation is conscious and deliberate, the actions of the other person forming a model after which the individual wishes to pattern himself; at other times the imitation is unconscious, a form of incidental learning. The person picks up the same attitude, fear, prejudice, enthusiasm or gesture, as someone with whom he has been in contact. As teachers, we are interested in determining how we can get children to imitate certain patterns and to refrain from imitating others. We

also want to determine whether imitation is a good technique to use as a deliberate method of instruction.

Imitation is dependent partly upon the ability to perform the act that is to be imitated. Though parents continually coax infants to imitate certain words and movements, the children make no imitative response until they have reached a certain age, a certain degree of maturation.

Once the ability to perform is present, even if only to a very slight degree, attempts to attain a better duplication of an observed behavior will ensue, provided the achievement of that response is the child's goal. An observed pattern of response becomes the learner's goal if he connects it with the satisfaction of some one of his motives. He may do as others do because he likes them and because he wants to be like the people he likes; he may do as others do because he envies their prestige and desires to attain similar prestige himself; he may do as others do because that will get him affection from the person he imitates or from some other person who has shown a liking for the qualities of the "model"; he may do as others do because he desires that specific achievement or trait; he may do as others do because doing the same thing together is fun. Social motives and motives of mastery thus form the context in which imitation is deliberately used in learning.

There are occasions when imitative response seems to be almost a reflex action. Speech—both inflection and grammar—is so much affected by the speech of daily associates that many a parent has been counseled to move to another neighborhood if he wishes to change the speech pattern of his children. Such unconscious imitation is most effective when the pattern of response is not yet firmly set. In most instances this means in early childhood. As the child matures, the patterns he has already acquired interfere with the automatic imitation of others, and often also with the success of deliberate imitation.

Imitation which is not deliberate need not be reflex or automatic. Certain other conditions favor its occurrence. When a child reflects the fear of his mother, he is not imitating her in the narrow sense of the word. Her sign of fear teaches him that the stimulus is a dangerous one and so he, too, re-

IN LOCO PARENTIS

sponds with fear. A similar pattern operates with regard to a large number of the prejudices of his group which he acquires in time. There is also the adoption of certain rationalizations which he has heard adults make as excuses for certain behaviors. These are sometimes adopted with full knowledge of what they are, but usually there is no such understanding and deliberate calculation.

So far as most skills are concerned, deliberate imitation is necessary for good learning; in the field of attitudes deliberate imitation is a negligible factor. The teacher must guide herself accordingly and set up such school situations that only desirable imitation will occur.

The question remains whether, in those cases where it is possible to teach a skill through imitation, this pedagogical technique should be employed. If teaching through imitation means setting up a model for the child to try to attain, then this is nothing more than making his goal clear for him, a desirable feature of teaching. In learning to speak a foreign language or in developing certain manual skills, the very closest imitation of the model is desired. It is in the creative arts, including thinking, that the unwise use of imitation may rob the learner of his ability to create. Here the work of another person should not be used as something to copy, but as something to learn from and to adapt to one's own ideas. Besides its frequent use in areas where more initiative on the part of the learner should be allowed, imitation has been abused as a pedagogic procedure by requesting the learner to duplicate step by step features of a response which has never been presented to him as a whole. Being led through the procedure in such a meaningless manner produces little real learning, unless the learner by his own efforts manages to perceive the pattern of what he is doing.

Another danger that the teacher must watch out for is that children become "dependent imitators" so that they match their conduct to that of others not because they have figured out that the technique the other person is using is one that will bring them to their own goal, but that they have learned to use the other person (a specific person or a class of persons) as a cue for their own behavior, with the general feeling that these others will lead them in the right direction.

This follow-the-leader trait can be seen in the negative also, that is, a certain person or class of persons take on the characteristic of those not to imitate.

In fascist countries, dependent-imitation is a trait that teachers do everything they can to develop, and the rewards and punishments of the social environment reinforce this learning. In a democratic country such behavior should be maladaptive. It is maladaptive to the maintenance of democratic conditions. Unfortunately, the schools as well as the general social environment often set up conditions particularly conducive to such dependent behavior. Its legitimacy in the case of the mentally retarded is obvious. But it is too often used in the teaching of art, literary, and music appreciation where professional critics become the cue for judgment rather than emotional reaction or a set of standards. The same attitude is often developed with regard to the appraisal of government and prospective political policies. Schools have been particularly prone to train children to make their judgments of truth and falsity match those they see in print.

Imitation in the sense of learning from others and from models, even exactly copying them in some instances, is a method which has a legitimate place as a means of saving much time by allowing the accumulated knowledge of generations to be acquired by one individual in his lifetime. However, it is inconsistent and dangerous to encourage dependent-imitative behavior. B.B.F.

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IN LOCO PARENTIS. The relationship of the school system, and particularly of its teachers, to its pupils is known by the legal doctrine of *in loco parentis* (in place of the parent). Legally as well as factually, the school (and the teacher) has the responsibility of the parent for the welfare of the pupils entrusted to its care for the period of schooling. This *quasi*-parental relationship is basic to many of the responsibilities and powers of the teacher. It places upon the teacher the responsibilities of a careful and prudent parent for the protection of the pupil (See NEGLIGENCE)

This doctrine also accounts for the author-

ity of a teacher to administer corporal punishment to pupils. With the exception of New Jersey and the District of Columbia, corporal punishment may be administered to students in substantially all the other states, subject to the power of individual school boards to impose other restrictions. Needless to say, such corporal punishment has limits: it must be for valid reason, must be administered in a manner and under circumstances commensurate with and appropriate to the wrong in question; it must not be of unreasonable severity or unduly punitive and harsh; and it must be administered only and solely for the proper education of the errant pupil or for the preservation of necessary school discipline. The existence of such power on the part of school teachers can derive only from the teacher's status *in loco parentis*; it is subject, as is a parent's right of corporal punishment, to criminal penalties for excess; and a teacher may also be subject to civil suit for recovery of damage, if the punishment be excessive or beyond the permissible realm of a teacher's activity.

The *quasi*-parental relationship has also been of value in affording legal justification for the school safety patrol where operated in the absence of specific statutes, in that the school may legally operate off its premises so as to care for the welfare and safety of the pupils in transit to and from school, an obligation which falls upon the school because it is *in loco parentis*. As the temporary parent, so to speak, the school under such circumstances may be under the obligation to protect the life and guard the physical welfare of its student body, since obviously that would be the rôle of the child's natural parent.

That the school should be held to the responsibilities of a *quasi*-parent is of utmost importance to parents. Their children, in most cases, are compelled to attend school. If the school could not be held to the accountability of a reasonably prudent and careful parent, our entire structure of compulsory free public education might suffer.

A significant aspect of the doctrine of *in loco parentis*, for schools, is the possibility that the doctrine may condition the scope of a school board's power. Since it places upon the school and teachers the responsibilities of a careful and prudent parent for the protection and furtherance of the inter-

ests and welfare of the pupils, an extension of the meaning of the doctrine *in loco parentis* may lead the school to the point, for example, of regarding as an essential part of its task the administration of periodic health examinations with a view to remedial treatment as well as mere diagnosis; in fact, some schools have already interpreted their duties as broad enough to require them to provide clothes, food, shelter, and otherwise unobtainable equipment for the pupils. If it is *in loco parentis*, the school will assume functions which may not seem obvious at first glance, functions which it may once have been impossible to contemplate out of the home. Personality adjustment, vocational guidance, job placement, physical fitness, family adjustment, home visiting, and family life-education are but a few of these more recently adopted school functions based on a broader conception of the rôle of the school in our society. Others include such activities as adult recreation, vocational retraining and rehabilitation, consumer education, nutrition education, and the host of other community activities on the periphery of the programs of progressive school systems. Inevitably as the school branches out into newer fields, and assumes functions which at other times and in other communities have been regarded as parental functions, the doctrine of *in loco parentis* assumes wider proportions. In terms of this concept it is, then, possible to think of the outer circumference of the circle of influence and power of the school as being delineated by the outer limits of applicability of *in loco parentis*. Just what these outer limits are will vary with the *mores* and customs of the time and place, as well as with the economic and political beliefs of the period, and will yield to these urgent social justifications which are acceptable to the people. Nothing could be further from the truth, therefore, than to ascribe a rigid and inflexible meaning to the doctrine *in loco parentis*.

A possible danger must be observed in this broader view of *in loco parentis*, in that the doctrine may become an instrument of oppression in the hands of a school board seeking to exercise powers endangering the civil rights of pupils and others. H.N.R.

IN-SERVICE TEACHER EDUCATION
—See TEACHER EDUCATION; TEACHERS' WORKSHOP.

INATTENTION—See **ATTENTION**.

INCENTIVES. Numerous studies of incentives have been undertaken predominantly for the purpose of determining whether reward, punishment, or rivalry will produce the fastest learning and the most effort in the undertaking of various tasks. Much less attention has been given by educators to the possibility of developing desirable incentives as part of satisfactory personality growth. Anthropologists—Margaret Mead, for example—have pointed out, however, that incentives, such as competition, gain their power not only from their relation to the biological needs of man but also from their position in the culture pattern in which that man finds himself. Recently dissatisfaction has been expressed with the assumption that all children of the same age and intelligence respond similarly to the same incentives. It has been found that the effect of school marks varies with the level of aspiration of the pupil who obtained them so that a mark of 90 may bring the feeling and incentive of failure to one student while a mark of only 70 brings a feeling of success to another. Moreover, since the same student's aspirations are not similar in different achievement areas, rivalry may be more of an incentive for him in one field of attainment than it is in another. The amount of ego involvement in the task influences the effect which competition produces. Children of different personality patterns have also been found to respond differently to the same incentive. Thus, young, nervous, or excitable children often do worse in a task when competition is introduced. Moreover, the context in which the incentive is set is also a factor. The findings of several studies, for instance, are that public reprimand or sarcasm brings different results than do private reprimand and private sarcasm. The immediacy with which the praise, blame, or the reward is bestowed also affects the learning or the amount of work done.

Studies comparing the effects of reward and punishment have on the whole shown rewards to be a more efficacious incentive though in some instances punishment is sometimes the stronger motivator. It has been found that although material which has little meaning is sometimes learned more quickly when punishment for failure is introduced, forgetting sets in rapidly and amounts

to a greater degree than when punishment is not involved in the learning. The comparative effects of reward and punishment continuously applied to people over a long period of time have not been studied under experimental conditions. Observation of life situations has shown, however, that though there are individual differences in the degree of punishment to which a person can "stand up," long-continued punishment eventually causes a breakdown of personality in one or more of its phases.

When the problem of incentives is considered more broadly under the problem of motivation, it is seen that the force of an incentive will depend upon its relation to all the motives present for that individual in the specific situation. As an individual grows, he develops a set of values which have motivating power for him. These values or a large number of them become set into a stable hierarchy. A low-ranking value can have strong force in a situation where no higher motives are in competition while a motive high up in the hierarchy may lose much if not all of its incentive value if a still higher motive is in competition with it in the same situation. Punishment, set up as a negative incentive to deter a person from carrying out a certain act, may be looked upon as a barrier or difficulty which must be overcome to attain the goal. Thus the punishment meted out to those who "cut" classes in high schools may be interpreted by some students as a challenge to their ability to absent themselves from a class without being detected. In such cases punishment does not produce any of the guilt feelings and emotional disturbance which it so often entails when it is felt by the one being punished as a sign of social disgrace.

Another area of motivation to which too little attention has been paid is the extent to which incentives will hasten insight into problems. Incentive studies have dealt mainly with memoriter learning, and with speed of tasks the performance of which is already known. Maze learning problems do present a task which the animal or child cannot yet perform. However, the extent of the problem is the learning to go here and not to go there, with the "here" and the "there" already placed before the animal. In these cases the error is easily seen as the wrong direction to the goal which is also the incentive. Cer-

INCENTIVES

tain incentives or rewards at the end of the maze produce faster learning on the part of the animal than others. With human beings, too, one finds that the more attractive the reward gained when the solution is gained the faster the elimination of wrong responses in those situations where there is some means of determining which response is wrong (even when it is punishment which indicates the error).

An important question for teachers is whether extraneous incentives will hasten insight into a task where the correct response is not just one to be chosen from among a number all set out in front of the learner and all of which he can already perform. If the task is one where the solution must be contrived rather than selected from obvious alternatives, then will that solution be hastened if it is known that some reward will be offered if the solution is contrived or some punishment meted out if it is not contrived within a specified time? Furthermore, will competition among a group of rival learners hasten insight?

Experimental evidence is meager for such situations. Many progressive schools are going on the theory that in such cases greater insight will come about through interest in the solution of the problem itself. They doubt the effectiveness of extraneous incentives which are tacked on to the situation by someone but which do not themselves arise as a consequence out of the contriving of the solution. Taking their lead from John Dewey's monograph on "Interest and Effort in Education," these educators advocate a curriculum based on children's interests as a solution to the problem of incentives. One of the great advances in the understanding of motivation has been the finding that the same objective incentive not only has different effects on different people but that it is actually a different incentive for different persons. Thus, when rivalry is introduced into a situation, the goal for each individual is not necessarily the mere attainment of greater achievement than that of some of the others or all of the others involved. If there is a specific reward offered, the competitor may actually be interested in attaining the reward rather than in beating the other fellow. The other competitors form barriers to his attainment of the reward. Whether or not a specific reward is offered,

there may be a number of other rewards and punishments involved in the competitive situation as it is experienced by the different rivals. For one child the competitive situation means the necessity of maintaining status when this is difficult to do, for another it means the possibility of gaining status, for a third it means the public exposure of lack of ability. For one child it means that success will bring added affection from his family, for another child it means that again his group will cast him out on the fringe because of their envy. Where to one child his position in the group is but an indication of his degree of skill in a situation where he has no other way of measuring the quality of his work, another child measures his skill strictly in terms of his rank among others, and accepts no other sign of success but that of outdoing his neighbor. For another child several of these motives operate together.

There are some educators who are fearful not that rivalry for high marks will fail to motivate their students but that such motivation may be too effective. In other words, the incentive of getting the highest grades may become the most dominant, if not the only, incentive for working hard. When school years are over, this usually leads to lack of interest in any further study since the main motive has been removed. It is therefore recommended that the building of worthwhile interests be the main form of producing motivation for learning, that commendation be for good work done and for improvement rather than for high rank in the group, and that children, far from being urged to rival their fellows be helped to feel satisfied with their best efforts even when these bring inferior results.

Many educators object to the excessive appeal to incentives which do not grow out of the learning experience itself. These critics regard the educational experience as consisting of more than facts and skills to be mastered by employing any incentives that prove to be effective. To them the most desirable incentive is the one which results from the pupil's recognition of the significance of the material being studied and of his need for mastery. They, therefore, look to the improvement of the curriculum and the methods of teaching as affording the necessary incentive to improvement. Even these critics, however, do not object to appealing to in-

INCREMENTS — INDEPENDENT STUDY PLANS

centives which improve the pupil's personal adjustments or even to the use of such incentives as controlled competition when no other appeal is available for a topic that must be studied. (See MOTIVATION.) B.B.F.

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INCREMENTS, TEACHERS' — See TEACHERS' SALARY.

INDEPENDENT STUDY PLANS. Independent study plans are a belated attempt (primarily since the first World War) on the part of the college to provide for individual differences, especially as represented by the needs of the superior student, who should have the amount and type of work that will provide the materials and personalities to stimulate maximum development of his capacities. Earlier and more general development of individualized methods of instruction has been retarded by relatively large enrollments and classes, as well as by the expense of independent study procedures. Large classes usually mean a common or general instructional pattern, within which are provided occasional adaptations of materials or methods to individual needs.

An increased awareness of the intellectual needs of superior students, and a desire to break the academic lockstep of time to be spent and credits to be earned have contributed to the development of a variety of independent study plans. In general, individual plans provide for: considerable freedom with respect to class attendance, independent reading and study under guidance, individual and small-group conferences, special problems or papers, and comprehensive examinations.

Where tutors or preceptors have been provided, their functions are to aid students on an individual basis or in small groups with classwork, examinations, correction of dis-

abilities, and development of special capacities and interests. Their functions and activities should be much broader by way of guidance than merely to see that students pass the courses.

Honors work is intended as a stimulus to superior students of the junior and senior years of college, and usually calls for specialization in a particular department and a program of independent reading culminating in a comprehensive examination (*q.v.*) at the end of the college program. Guidance is provided on an individualized or tutorial basis and in small groups, with emphasis on mastery of a subject rather than on mere fulfillment of the limited requirements of a single compartmentalized course. It is expected that this procedure will help to coordinate ideas from several fields and to break down barriers between departments of instruction. Somewhat like the reading program of the honors plan, some colleges suspend class attendance for certain periods of the year, before and after holiday recesses or at the end of academic terms, to permit uninterrupted reading and study.

Higher institutions have used a variety of other instructional procedures in an attempt to meet individual needs, with emphasis on independent study: individual conferences, small discussion groups, seminars, excursions and travel, individual study during vacations, and periods of work or study in community activities. Independent study at the graduate level is represented by thesis problems, seminar reports, and laboratory, field, and clinical projects. A few colleges have attempted to explore the interests and experiences of the student as a starting point for selecting an appropriate program of study, including extracurricular activities, which places considerable responsibility on the student in selecting a program of study, in planning and carrying out his work, and in evaluating outcomes.

The limited number of experimental investigations available indicates that individualized projects and reading programs, and other independent study plans, have demonstrated their effectiveness in comparison with more conventional instructional procedures. Independent study plans are relatively expensive, but should pay ample dividends in terms of stimulation of the intellectual life

INDIA, EDUCATION IN

of superior students; indeed, such procedures may prove helpful in the instruction of all students of serious purpose. Other possible values of these innovations lie in the intellectual challenge to faculty members and the breaking down of departmental lines. C.V.G.

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INDIA, EDUCATION IN. The problem of education in India is highly controversial. In the seventeenth century Robert Knox wrote of the Sinhalese: "Their ordinary Plowmen and Husbandmen do speak elegantly . . . there is no difference between the ability and speech of a Country-man and a Courtier." In 1881 Sir George Birdwood wrote of the Indians that "Our education has destroyed their love of their own literature . . . their delight in their own arts and, worst of all, their repose in their own traditional and national religion. It has disgusted them with their homes—their parents, their sisters, their very wives. It has brought discontent into every family so far as its baneful influences have reached." This condition stems from the premises on which Western education was developed in India. The two primary ends in view were (1) to convert Hindus and Musalmans to Christianity and (2) to provide a personnel for the lower branches of the Civil Service. In so far as a sense of duty and more idealistic ends were also envisaged, these were largely vitiated by the conception of a superior civilization to be imposed on others for their own good. The principle that the only way to educate is "to find out what people have been trying to do, and help them to do it better" (Ruskin), or that "systems of government should be extensions of the culture of the peoples concerned" (T. M. Heron) was not followed. As a result of Lord Macaulay's influence, supported by that of Lord Bentinck, it was decided in 1834 to form a class of persons "Indian in blood and colour, but English in tastes, in opinion, in morals and in intellect." The English Orien-

talists who had held with Jonathan Duncan in 1792 that the purposes of a Hindu university should be to recover and foster "the most ancient and valuable general learning and tradition now existing perhaps on any part of the globe" were ignored. The power of those who held with B. H. Baden Powell, who, as late as 1872, could write "In a country like this, we must not expect anything that appeals to mind or deep feeling" determined Indian educational policy until far into the nineteenth century.

Education in India has too often been treated (as above) as if education had been unknown. Actually, universities (Taxila, Nālandā, Nadiā, Totagamuwa, etc.) had existed in India since a time before the beginning of the Christian era, and these had been centers of practical as well as theoretical instruction. Innumerable schools of various kinds, ranging from Sanskrit colleges to village schools for elementary teaching, all self-supporting, existed in the nineteenth century, and some of them still survive. Vocational instruction was provided for by apprenticeship.

The whole subject is complicated by the differences between the educational ideals of native India and those of the Western world. Literacy, for instance, is less of a problem to a culture based on highly developed oral traditions. The "illiterate" Indian peasant may be considered "uneducated" according to Western standards, yet because of his extensive oral knowledge of a great traditional literature he is not to be so considered according to Indian standards. Where the Western world proceeds on the assumption that education is primarily in knowledge, the Indian assumption is that education should be in understanding. The Indian considers it fundamentally important to preserve the Indian respect for learning; the relation of discipleship that attaches the pupil to his master; and the Indian view that we do not know a book by reading it, but only when we know it by heart—(a phrase that means much more than mere rote memory, and implies the deepest kind of understanding).

Even more important is the fact that the traditional Indian education, whether theoretical or practical, has always been based upon a definite conception of the purposes of life; while it is just the lack of unanimity

on this fundamental point that explains the eclectic quality of modern Western education.

Before 1835 British educational policies had hardly affected any area outside Bengal. A succession of Universities founded after the Mutiny (1857) were at first purely examining bodies, teaching being given only in colleges of all sorts and conditions. The first Universities were those of Calcutta, Bombay, and Madras. The beginning of the great Muhammadan University at Aligarh dates from 1871; that of the Universities of the Panjab and Allahabad from 1882 and 1887. Colleges for the sons of Rajput noblemen were founded at Ajmer and Kathiawar. In 1901 reforms were instituted by Lord Curzon and the conversion of the Universities to teaching bodies and centers of culture was begun. Some attempts were made to encourage the vernaculars and to give practical instruction in engineering and agriculture. Of the younger Universities for which Indians have been primarily responsible, the Hindu University of Benares is by far the most important.

But, as remarked by Mr. Mayhew, "the educational systems established by the British and India have never been a natural or free expression of national life." That, indeed, could hardly have been the case where "all affiliations and disaffiliations of colleges were to be finally determined by the (foreign) government; all professors, readers, and lecturers must be approved by it." Higher education has been given, moreover, almost entirely in English; this imposes great handicaps on the Indian student who is expected to do all his thinking in a foreign language, and with whom the foreign teacher cannot communicate in his own. These conditions are, of course, being progressively remedied as the control of education passes into Indian hands, though a generation of Indian students ignorant of their own history and culture has already been produced. Where Indians have gained control of educational institutions the growing tendency has been to relate curricula once more to the geographical and psychical environment in which they are to serve, and also to revert to vernacular instruction, making English a second language and giving to it what is considered its proper place, not as the vehicle of teaching but as a *lingua franca* and a means

of communication with the Western world. One of the most remarkable institutions is the college of the Arya Samaj known as the Gurukula, where the curriculum is designed to cover a period of some twenty-five years, and all the students can speak Sanskrit freely by the time they are twelve years old.

The proportion of the national income spent on formal education is very small. The number of university graduates in 1938-9 was 21,658. Out of a total population of 352,837,778, that year, 28,138,856 were literate, 23,969,751 of these literates being males, and 4,169,105 females.

A.K.C.

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INDIAN, AMERICAN, EDUCATION OF—See AMERICAN INDIAN, EDUCATION OF.

INDIVIDUAL DIFFERENCES. The educator's concern with individual differences is related to the need to adjust the curriculum in such a way that each student develops to the maximum of his ability and grows into a well-rounded person. Individuals differ in the degree to which they possess almost any characteristic that can be named and in the total pattern of their personality. It is customary to apply the term individual differences to traits which can be separated sufficiently from the total personality to be measured. Since methods of measuring human traits have been improved, it has been possible to determine how individuals vary with respect to almost any trait. It has been found that with respect to most characteristics, the population as a whole, or a large unselected sample of it, distribute themselves along a

INDIVIDUAL DIFFERENCES

scale of that trait from a relatively small possession of it to a relatively large quantity and that the nearer we approach the average quantity that is possessed the more persons there are who possess the trait to that degree. In other words, most human traits, distribute themselves approximately according to the *normal probability curve* (*q.v.*).

Because it has been found so often that measured variations among human beings do resemble the frequencies of a rough normal curve, the working assumption has been adopted that all traits actually are so distributed in every random sample of the population. Frequently tests are considered invalid if they do not bring about results which have a normal frequency distribution. The same is said of the teacher's grading of essays and other performances where quality must be judged. The expectancy that every small group will show a normal distribution is of course a fallacious deduction from the hypothesis of normal distribution since the normal distribution assumes a large, unselected group and not a small group of people. From time to time, however, experiments show that the hypothesis of normal distribution for the population at large may itself be an overgeneralization, and that some abilities and other traits actually show a J-curve, U-curve, or a skewed distribution.

Since abilities develop in time and are not given full-fledged at birth, any factor which operates on a large group to place a barrier to further development at a relatively low standard of attainment will skew the distribution of that attainment and may even bring about a break in the distribution. It is obvious, for example, that the distribution of reading ability among adults will be *partly* dependent upon the educational opportunities afforded those adults. In social attitudes and behaviors, it has been noted that the pressure of social conformity may produce a J-curve, with the majority of persons piling up at one end of the distribution. In cases where the population is divided into two groups with social pressures in each of the groups driving in opposite directions, a U-curve will result, the individuals piling up at each end of the distribution leaving few in the middle.

It is not only the distribution of individual differences and the effect he can have upon that distribution, but also the range of indi-

vidual differences and the effect he can have upon that range that is important to the educator. The range of reading ability at age eight for children who have had two years of training will be much smaller than the range of reading ability at age sixteen for children who have had ten years of training, and this will hold true even if reading teaching is adjusted to individual needs. Adjusting the school program to individual differences in no way implies that individual differences will be reduced. They are just as likely to be increased, since there is also a wide variation in the ability to profit from teaching and experience.

The organization of rapid, normal and slow learning classes is the attempt to group children according to their ability to profit from instruction. (See *CLASSIFICATION OF STUDENTS*.) The difficulty of such organization is two-fold. In the first place, a person's ability to profit from instruction differs in different subject-matter areas. In the second place, it is difficult to find a good index of the ability to profit from instruction. Even in any one learning area, the ability to profit from instruction is a function of the C. A., the M. A., the I. Q., the present achievement in that area, specific aptitude in that area, knowledge in other areas which will have a transfer effect on this one, various factors of motivation and health, as well as the method of instruction. Since each of these factors itself changes at different rates and in different ways, even a multiple index cannot be a permanent index. Adjustment of the curriculum to classified groups of children rather than to individual children is therefore not sufficient to take care of individual differences. Whether there has been ability sectioning or not, heterogeneity rather than homogeneity is characteristic of school classes. Children within a single school class as well as within a single school grade tend to differ more widely among themselves than they do on the average from grade to grade, and the range of both their abilities and educational achievement may extend from grade levels two or three years below to a like amount above. The exact extent of these differences will vary according to the nature of the trait considered. It will tend to be less with respect to those traits and abilities which are given greater weight in promoting children

from grade to grade, and greater in traits of less immediate concern to the functioning of the school and its manifest objectives.

Various provisions for individual differences other than, or as well as, ability sectioning have been suggested and put into practice by educational authorities, some of these being designated by the names of the authors or of the school systems employing them. Examples are the Dalton, the Winnetka, and the Morrison plans (*q.v.*). "Job sheets" or "unit assignments" which are placed in the hands of each child and followed by him at a rate commensurate with his ability provide for individual rates in school progress, though not for individual interests. Standardized remedial exercises are also employed to suit the needs of the particular pupil, usually after standardized diagnostic testing. If the deficiency cannot be remedied in this manner, the child may be assigned to an "adjustment teacher" or to one teaching an "ungraded" class, whose special task is to remove the deficiency by individual attention and to return the pupil to a graded class as early as possible. (See SPECIAL CLASS.) School systems sometimes include research or personnel divisions which are concerned with the individual study of widely variant pupils and appropriate recommendations to their teachers. Guidance (*q.v.*) services are also occasionally available so that the student may have special help in planning both his educational and vocational career.

A broader attempt to adjust the school to individual differences has been made by "progressive" educators. These educators have moved away from the conception that adjustment to individuals means helping them keep pace with the group or the mere lowering of age standards for the mentally slow and retarded. They have taken individual adjustment to mean adjustment to individual *needs*. The child's ability to progress faster or further is not the only consideration. The needs of the able and gifted children receive as much consideration as the needs of the dull and the normal. (See GIFTED CHILD, EDUCATION OF.) Varying interests also play a major role. While no set pedagogic technique has been adopted as the one best procedure, the courses of study in these progressive schools are necessarily much more flexible and adaptable to individual needs than any of

the differential curricula adopted in schools that are organized on the basis of ability grouping. The common denominator for the various children attending a school consists of values, and generalizations, and conceptions, and broadly named skills and appreciations to be improved in year after year. The specific content may vary widely, provided that through it the objectives are reached. Different individual assignments and group projects with division of labor allowing for individual differences are both used. A distinctly different emphasis from the more traditional ways of adjusting to individual differences is that not only are individual differences allowed for, but variability is encouraged.

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INDIVIDUAL PSYCHOLOGY — See PSYCHOLOGY, SCHOOLS OF.

INDIVIDUALIZED INSTRUCTION.

Providing learning experiences which make it possible for the pupil to proceed by himself without help from the group and very little help from the teacher is the aim of individualized instruction. The learner progresses by individual study instead of through group discussion, class recitation, and the question-and-answer method. Favoring individualized instruction are those educational influences which stress individual differences, the futility of the "lock-step" in education, and the right of the pupil to advance at his own rate.

In school systems or classrooms where individualized instruction has been emphasized, as in Winnetka, Illinois, detailed work books and job sheets have been prepared, often by groups of teachers, giving the steps and directions in full. At least four preliminary steps are basic to planning this type of instruction: first, the objectives must be clear and definite; second, activities needed in attaining the standards or objectives must

be carefully outlined and finely graded; third, self-corrective practice tests must be supplied for the pupil's use; and fourth, mastery tests for the teacher's evaluation of the degree of attainment of standards must be available. The standard of attainment is the same for all pupils, and whenever a pupil reaches the standard he proceeds to the next block or division of the work. A standard in arithmetic may be the mastery of the one hundred addition combinations, or a part of them, within a certain time with a hundred per cent accuracy. As a rule, the pupil is taught how to budget his own time. Usually the plan is confined to the tool subjects; it does not extend to physical education, games, dramatics, clubs, and other socialized activities.

Several serious criticisms of individual instruction have been raised. The plan means "mediocre" achievement for some pupils because the standards must be lower than the possible achievement of many bright pupils. It provides primarily for individual differences in rate of learning, but it misses the values resulting from socialized class activities inherent in meaningful, life-like applications of the so-called tool subjects. The social development of many pupils lags behind their intellectual advancement, and accelerated pupils who get into older groups may become maladjusted socially. Too much "predigested" material makes pupils too dependent: the "spoon-fed" ones fail to develop ability to think, to plan, to work out their own salvation.

Individualized instruction, of course, is not a question of all or none. Every good teaching procedure utilizes individual effort to a greater or lesser degree. The directed study idea, the laboratory technique, and the Morrison Unit Plan with its assimilation period all stress individual instruction. The daily assignment followed by pupil study and preparation demands individual effort. These procedures, however, usually do not require detailed instruction and directions found in work books; they provide for discussion and other group activities; and the teacher plays a prominent rôle in these oral activities. Moreover, provision for individual differences should be made through enrichment, as well as through individual progress at one's own rate. As with any other plan of instruc-

tion, the individual instruction idea has been modified to meet new conditions and to serve in remedial teaching. (See DALTON PLAN.)

F.A.B.

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INDOCTRINATION. Two questions, often confused, are here considered: the proper meaning of the term indoctrination and the proper attitude toward inducing uncritical belief.

The term has a long history, and during the years several distinct usages have developed. Originally, to indoctrinate was to implant doctrines. Later, since implanting doctrines was the main purpose of the medieval school, to indoctrinate and to teach came to mean about the same thing. In this teaching there was the implication—alike from the customary school practice of the time and from the meaning of the word—that the teacher's aim in indoctrinating was so to implant the doctrines he taught that they would remain fixed.

With the Protestant Revolt each side through its schools used this indoctrination as a conscious device to fix its doctrines permanently in all it could reach. Under such conditions the indoctrination by "our" side of "the right" doctrines was right and praiseworthy, while the indoctrination by the other side of its "wrong" position was not only wrong as to intended result but was also wrong as to the process used, since this took advantage of the helplessness of youth.

From the eighteenth century onwards there has come, with the stress first on the individual and later on rapid social change, an increasing demand that education develop individual initiative and fit youth for democratic responsibility and for resourceful adaptiveness amid change by teaching the young people increasingly as they grow older to think critically and decide responsibly, each one for himself. Accordingly, there is increasing rejection of the inducing of uncritical belief as unfitting the student for practical life

amid rapid change and as an unethical denial of respect for personality.

The present status as to the meaning of the term and the respective support given to the several usages seem to be about as follows:

1. The oldest sense is that indoctrination is simply the teaching of ideas with no implication either as to method used or as to approval or disapproval of either process or result. This meaning was until recently the recognized literary usage; in fact the Oxford English Dictionary (this part issued about 1900) carries no other meaning.

2. Several diverse groups among us agree in approving the uncritical implanting of ideas in the young as a proper means toward ends counted as important. These groups tend then to approve the term indoctrination to describe this kind of education. Among these supporting groups are (a) certain churches, especially those which stress absolute doctrines; (b) certain groups which advocate revolutionary social reforms; (c) certain conservatives who wish to resist threatened social change; (d) certain "patriotic" groups—with not a few educators joining in—who fear critical study lest it fail to train the rising generation adequately in the cultural inheritance including the proper patriotic outlook.

3. A group of American students of education, especially, and others influenced by them, who stress democracy and adaptability to change, reject the inducing of uncritical belief in youth as prudentially unwise and morally wrong. These people use the term indoctrination only in a bad sense to describe and denounce this (to them) wrong kind of teaching.

4. Intermediate between groups (2) and (3), and often difficult to distinguish from them, are certain who inconsistently use the term to denounce, for example, Nazi indoctrination, but themselves favor an analogous uncritical implanting of democracy in our youth, even using the term to describe their approved home practice.

5. An unexpected (by this writer) use of the term indoctrination appears in our (temporary) naval training schools. This "naval indoctrination" is said to include "instruction in the fundamentals of military discipline, naval customs and usage." No special stress on doctrines appears.

The foregoing analysis of the present status of indoctrination is based in good part on a study of over 300 instances of the use of the term indoctrination taken from the writer's reading the past four years, not selected but including all the pertinent instances found. Of these by far the largest number, from one-half to two-thirds, seems to support the derogatory sense (3) with its rejection of indoctrination; about one seventh of all support sense (2); slightly fewer accept sense (1), while exactly eight instances support sense (5) and even fewer admit to (4). W.H.K.

INDUCTIVE METHOD. The inductive method leads to the discovery of generalizations or uniformities: principles, laws, rules, and definitions. Its basic meaning in education is the same as in the natural and social sciences. Copernicus, Newton, and Darwin are classed among the inductive scientists because they laid bare some basic generalizations that describe the operations of nature. That teacher is teaching inductively who leads his pupils to rediscover these same principles in mathematics, physics, biology, grammar, and other subjects.

The inductive approach requires (1) the recognition of a problem, suggested by puzzling data (e.g., What has produced our apparently endless varieties of plants and animals?); (2) the gathering of instances (of changes in plants and animals, in this case) by observation, experimentation and reading; (3) the formulation of hypotheses or tentative explanations that might account for the changes; (4) the testing of these hypotheses by checking them against the instances; (5) the formulation of the accepted hypothesis or explanatory principle; and (6) the further verification of this principle by applying it to instances as widely different as circumstances permit. In school, verification is usually satisfied by reference to authorities.

The inductive process is correlative with the deductive process, which supplements and completes it. When we face a puzzling instance, such as a peculiarly shaped flower, and explain it by a specific principle of natural adaptation that is known to us, we are proceeding deductively. What is called problem solving in school involves deductive problems almost exclusively.

INDUSTRIAL ARTS EDUCATION

The steps of the deductive procedure may be listed as follows: (1) get the conditions or problem clearly in mind; (2) recall known facts or gather facts that may apply or serve in the solution; (3) choose the facts or generalizations that appear most likely to apply or account for the situation or conditions (tentative inference); (4) try out the proposed solutions or apply facts (evaluation of tentative hypotheses; (5) formulate inference or state answer or conclusion; (6) verify or check conclusions.

Pupils should be shown the significance of both the inductive and deductive procedures in solving particular types of problems, but this should be done through experience in solving problems rather than by having the pupils learn a set of steps which they are to try to apply later. It is valuable for pupils to learn to recognize and to apply these steps as means of improving their ability to think through problems and to plan solutions.

The deductive procedure is used most frequently by pupils in mathematics and science classes in the solution of examples and problems involving the application of principles or rules. In actual practice the pupil should be taught (1) to get his problem in mind—what is given and what is required, (2) to select the best plan for solution that is suggested by the facts, (3) to solve the problem, if possible, and (4) to verify or check results. In case of failure to solve the problem, the student should check the first step and then repeat the other steps until a solution has been obtained.

The Herbartian method-whole, with its five formal steps, embodies this inductive-deductive procedure. In the first step, *Preparation*, including the three phases of review, aim, and motivation, the student's mind set is oriented toward the new material. The specific instances are presented in the second step, *Presentation*. The third step, *Comparison*, aims at getting the students to see the fundamental similarity underlying all the instances, a similarity that is formulated by the pupils in the fourth step of the lesson, *Generalization*. The fifth step, the *Application*, is a deductive activity in which the students apply the newly discovered principle to other illustrations.

The Herbartian method, though not so

popular as it once was, can still be used effectively by teachers whose interest in the type of pupil thinking that is stimulated is greater than their devotion to the specific steps of the method-whole. Used wisely, the method is appropriate for helping students to understand a basic principle (e.g., that a modifier must be placed near the word it modifies). The weaknesses of the Herbartian method lie in the ease with which the teacher can dominate the lesson, in the excessive phases of the method rather than to the outcome, and to the apparent simplicity of a formula that can be used in all subjects regardless of its applicability.

In life situations, the solution of problems involves a combination of inductive and deductive methods. There is no pure inductive and deductive procedure—there is no deduction so rigid that is not modified, however, slightly, by experience, nor is it possible to have an induction based solely on observed phenomena without touching upon known laws or principles. Modern scientific method uses both procedures as the requirements of the problem indicate, and uses them not as distinct steps but as interrelated phases of problem solving.

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INDUSTRIAL ARTS EDUCATION.

Industrial arts education is a phase of practical arts education (*q.v.*) which emphasizes mechanical or manufacturing types of activities. It is the modern version of what was formerly called by such names as *manual training*, *manual arts*, and *mechanic arts*. Industrial arts may be divided into (a) elementary industrial arts, usually given in grades 1 to 6 inclusive, and (b) industrial arts at the secondary school level, given as a rule in grades 7 to 12 inclusive. In many progressive school systems industrial arts education is compulsory for boys in grades, 7, 8 and 9, and optional in grades 10, 11 and 12. It is becoming increasingly available on an elective basis to girls in junior and senior high schools. When given in the

school, it is taken by both boys and girls and is given by the "regular" teacher. In junior and senior high schools, industrial arts is taught by specialists.

The dominant purposes of industrial arts education at the secondary school level are given in the following twelve objectives formulated by the Committee on Standards of Attainment in Industrial Arts Education of the American Vocational Association:

"1. To develop in each pupil an active interest in industrial life and in methods of production and distribution.

2. To develop in each pupil the ability to select wisely, care for, and use properly the things he buys or uses.

3. To develop in each pupil an appreciation of good workmanship and good design.

4. To develop in each pupil an attitude of pride or interest in his ability to do useful things.

5. To develop in each pupil a feeling of self-reliance and confidence in his ability to deal with people and to care for himself in an unusual and unfamiliar situation.

6. To develop in each pupil the habit of an orderly method of procedure in the performance of any task.

7. To develop in each pupil self-discipline which requires one to do a thing when it should be done, whether pleasant or not.

8. To develop in each pupil careful, thoughtful work without loitering or wasting time (Industry).

9. To develop in each pupil an attitude of readiness to assist others when they need help and to join in group undertakings (Cooperation).

10. To develop in each pupil a thoughtful attitude in the matter of making things pleasant for others.

11. To develop in each pupil a knowledge or understanding of mechanical drawing, the interpretation of conventional and working diagrams.

12. To develop in each pupil elementary skills in the use of the more common tools and machines in modifying and handling materials, and understanding of some of the more common construction problems."

These objectives are attained by having school instruction given in one of several ways—in general shops, a series of unit shops, and in variations of these. (See GENERAL

SHOP, PRACTICAL ARTS EDUCATION, and UNIT SHOP.)

The range of activities in industrial arts education varies greatly. From the simple work in elementary industrial arts, through the more advanced activities at the junior high school and senior high school levels, pupils have the opportunity to try out many kinds of materials, tools, and processes. Clay, textiles, leather, wood, metals of many kinds, and plastics are used.

At the junior high school level, drawing, woodworking, electrical work, printing and other graphic arts, and metalworking are among the activities most frequently found. Work in aeronautics and radio is increasing rapidly. Starting with simple and safe tools, the learner soon becomes familiar with an extensive variety of tools, including in the upper grades many sorts of power-driven tools and machines—a fit introduction to the power-machine-air age.

Materials, tools, and processes are but means leading to a better understanding of man's vast occupational activities and of the progress that is being made in using natural resources for the benefit of man. It appears reasonable to hope that through well directed industrial arts education students will attain a deeper appreciation of the dignity and nobility of labor and the joy that comes to him who works creatively.

The objectives of industrial arts are attained by merging the fine arts and the industrial arts, and by combining good design, proper choice of material, and superior manipulative work.

F.T.S.

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INDUSTRIAL GEOGRAPHY — INHIBITION

INDUSTRIAL GEOGRAPHY — See GEOGRAPHY, TEACHING OF. }

INDUSTRIAL HIGH SCHOOL — See SECONDARY EDUCATION; VOCATIONAL EDUCATION.

INDUSTRIAL HYGIENE—See HYGIENE AND HEALTH EDUCATION.

INDUSTRIAL SCHOOL—See GENERAL INDUSTRIAL SCHOOL.

INFANT CARE. Instruction in infant care has been developed chiefly in connection with health programs carried on by both public and private agencies. Individual and group instruction for expectant women and mothers of infants is given by physicians and nurses, often in special centers for maternity and infant welfare. To some extent similar opportunities are open to fathers. A variety of pamphlets and bulletins can be obtained from government agencies such as the Children's Bureau of the Department of Labor, as well as from private consultation services. Preparental instruction for younger women and girls, usually including practical experience in caring for infants, is offered by some health agencies, as well as by schools and colleges (see PREPARENTAL EDUCATION). The Children's Bureau and the United States Public Health Service have considerably extended the facilities for instruction in infant care, particularly in rural areas.

Although the original purpose of instruction in infant care was the reduction of infant mortality, it has more recently broadened its scope. As scientific information regarding infant development and the significance of attitudes acquired in infancy has increased, instruction in infant care which deals with psychological as well as physiological factors has been offered by certain agencies. This expansion fills a real need, since most programs of parental education (*q.v.*) do not reach parents of children younger than nursery school age.

B.B.L.

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INFANTILE PARALYSIS — See COMMUNICABLE DISEASES OF CHILDHOOD.

INFANTILISM — See REGRESSION (PSYCHOLOGY.)

INFECTIOUS DISEASES — See COMMUNICABLE DISEASES OF CHILDHOOD.

INFORMAL TEST—See STANDARDIZED TESTS.

INHIBITION. *Inhibition* denotes partial or complete interference or suppression of one function or activity by another function or activity. In the stammerer, speech may be inhibited by the fear of stammering. Gastric secretions may be inhibited by anger. Anti-social impulses may be inhibited by social ideals. The child's spontaneity may be congealed by sarcastic cuts, and his boisterousness and expressions of anger inhibited by threats or expressions of social disapproval. The rule is that stronger impulses tend to block weaker ones. Painful or shame-producing experiences tend to be inhibited by being dismissed from the mind or by being repressed. Most serious inhibitions that the child forms are probably caused by deep-seated conflicts between his egoistic, emotional drives and the taboos and prohibitions of society.

Many inhibitory adjustments of anti-social proclivities are wholesome and necessary, and much to be preferred to unbridled license. But excessive or unwise inhibitions may produce paralyzing suppressions, block initiative and spontaneity, create mental conflicts (*q.v.*) and maladjustments, and lead to the formation of injurious mental complexes and compensations (*q.v.*).

Conditioned inhibitions are the result of specific processes of conditioning. A child may seize, take hold of, or handle a cat. If the animal bites or scratches the child, this experience will inhibit subsequent desires and actions to repeat the performance. Thus the experience of being bitten or scratched when the child takes hold of a cat may produce a conditional fear of cats, (See PHOBIA) and inhibit any subsequent tendency to handle or fondle these pets. Many inhibitions

are the result of specific processes of emotional conditioning.

Reciprocal or *mutual inhibition* occurs when two tendencies are about equally strong. These two tendencies will then extinguish each other, resulting in postponement, inaction, or a state of vacillation. Thus the student may vacillate between the desire to play tennis and the necessity of completing the term paper.

In *retroactive inhibition* later formed associations may impair those formed earlier. Recent learning may alter, inhibit, or impair earlier ones. The challenge of imminent danger may inhibit the tendency to run. If a series of facts is learned in the order a—b—c, the attempt to learn them in the order a—b—z may weaken the older association to a greater extent than mere inactivity.

C.E.S. and J.E.W.W.

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INITIAL TEST—See PRETEST.

INSECURITY, EMOTIONAL — See MENTAL HYGIENE.

INSTINCT. In its modern form, the once widely accepted instinct theory holds that both man and many animals exhibit certain relatively complex forms of behavior, or relatively specific motivational tendencies, which are wholly or in large part innate in their respective species. Among the frequently suggested criteria of such unlearned modes of response, or instincts, have been their supposed universality within a given species, their peculiar adaptiveness to its environment, and their appearance without opportunity to learn them. Proponents of various formulations of the instinct theory—James, McDougall, Thorndike, Woodworth, and many others—have differed widely in their inventories of human instincts, but among those commonly listed, food-getting, curiosity,

fighting, acquisitiveness, rivalry, and parental behavior have been typical.

Controversy over the existence of such human instincts—especially vigorous in the 1920's—has been complicated by the use of the term instinct with a variety of specific meanings. Two general concepts of instinct, however, have tended to predominate in modern discussions of the topic. (1) Using the term in the general biological sense common since Darwin, many writers (e.g., Thorndike, Loeb, and Watson in his earlier writings) have viewed instincts as unlearned sensorimotor responses of a certain type. These responses—presumed to be most clearly exemplified by such activities as the mating, maternal, and nest-building behavior of many animals—have usually been defined as more complex than the simple reflexes, largely inherited by a given species, and evoked by certain determinate stimuli without prior learning. Writers conceiving of instincts in this fashion have differed as to the degree of their complexity and modifiability by learning; quite commonly these responses have been regarded as unlearned chains of well-coordinated reflexes, and have been differentiated from simple reflexes on the basis of their greater complexity, indefiniteness, and modifiability. (2) Other modern writers, however, have preferred to define instinct teleologically, i.e., in terms of an end or purpose. For these writers (e.g., McDougall, and in large measure James, Thorndike, Woodworth, and Tolman) instincts are primarily innate propensities or dispositions that impel an organism toward certain unlearned and often relatively specific goals, such as are involved, for example, in mating, acquiring, or seeking the company of one's fellows. These ends have been variously described by different writers in biological, mentalistic, and behavioral terms, but from the general standpoint in question, common emphasis has been placed on instincts primarily as instigators to goal-directed activity.

At present, the technical use of the term instinct with reference to human behavior is largely restricted to psychoanalytical writings. Avoidance of the term by academic psychologists is due in part to its ambiguity, but chiefly to the present widespread reaction against the instinct theory. Some psychologists would even discard the traditional con-

INSTITUTE OF THE BROTHERS OF THE CHRISTIAN SCHOOLS

cepts of instinct altogether for various reasons, including doubt of their explanatory value, and of the validity of the distinction they imply between "innate" and "acquired" forms of behavior. Even when retaining some concept of instinct to deal with certain activities of infra-human animals—as many contemporary psychologists do—most of these writers tend to the view that there is adequate evidence for the existence of few, if any, human instincts. Certain human responses (i.e., the reflexes and the initially undirected physiological motives often termed primary "drives" or "needs") are commonly regarded as unlearned; but evidence derived chiefly from studies of child development and of cultural influences on man's reactions has led to widespread doubt of the instinctive character of most of his more specific motives and complex forms of behavior.

That human beings are organisms with certain characteristics at birth, characteristics which influence the kinds of characteristics (including the kinds of thoughts, feelings, and behaviors) that each will display during his life is almost universally accepted. Much of the controversy over the instinct theory boils down to the question of whether that concept properly explains the kind of influence that this is, and whether certain so-called instincts are in fact instincts as these have been defined above. Since the term has acquired so many unacceptable connotations—unacceptable in the light of present knowledge—many psychologists believe it the wiser policy to drop the term *instinct* completely.

Unfortunately, it is just these fallacious connotations of the term which teachers and parents often accept as working hypotheses in their relations with children. They are inclined to feel that "instinct will tell them what to do," or that the child has a bad instinct which the adult can do nothing to eradicate, or that children have certain specific instincts which always respond when they are appealed to. At one time teachers talk about "letting their reason get the better of their instincts", as if that were a bad procedure and instinct were more dependable than reason, while at another time they assert that you cannot change human nature. Though it is true that parents and teachers constantly display behavior towards children which signifies that they do believe that human nature

is modifiable, nevertheless their confused beliefs with regard to "instincts" enter, on many important occasions, into their technique of guiding the young. Though it would be disastrous for parents and teachers to believe that any baby can be turned into any kind of person desired by the trainer (a claim that was put forth for a time by some behaviorists), it is equally disastrous for parents and teachers to believe in a fixity of characteristics where no such fixity exists. (See also *PSYCHOLOGY, SCHOOL OF.*) B.B.F. and B.B.M.

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INSTITUTE FOR CHILD GUIDANCE

—See CHILD GUIDANCE CLINICS.

INSTITUTE OF THE BROTHERS OF THE CHRISTIAN SCHOOLS. The Institute was founded in 1680 by St. John Baptist de La Salle, then Canon at Reims, France. The Founder's interest in popular education led him to organize a group of schoolmasters so as to provide free Christian instruction for the poor. Members of the Institute take the three usual vows of obedience, chastity and poverty, and also bind themselves to remain with the society permanently and to devote their efforts always to the free instruction of the poor. They accept the direction of any kind of male educational instruction. The Rule organizing the Institute as a regular religious society was drawn up at Rouen in 1705 and was approved by Benedict XIII in 1725. It fosters unity of action, apostolic zeal and adaptation to new circumstances. The provisions of the Rule have made it possible for the Institute to undertake in many lands such diversified educational activities as conducting schools of agriculture, trades, engineering, and commerce; normal schools, orphanages, reform schools, trade unions, study circles, boarding schools, colleges, benevolent societies, and elementary and secondary schools.

Many educational reforms may be attributed to the leadership of St. John Baptist de La Salle. Under his direction the Brothers

INSTRUCTION SHEETS

introduced the so-called method of "simultaneous instruction," providing for the group instruction of children of the same intellectual development. It replaced the individual method then in use. This innovation led ultimately to the formation of sections in classes. Another innovation was teaching pupils to read the vernacular before beginning instruction in Latin. A method of teaching was developed which was made available for general use in the schools of the Institute through a manual entitled "Management of Schools." The manual was prepared by the Founder and the most capable teachers of the Institute and presented the method and principles developed during a series of conferences extending over a period of years. Everything done in school from the opening until the closing hour was dealt with in detail, so as to provide for thoroughness, coordination, uniformity and effective teaching. The interest in better methods of teaching finally led to the founding of the first normal school, established in Paris one hundred years before the French Revolution. Late in the eighteenth century, just before the French Revolution, there were 121 houses in France and six abroad, comprising a total of 1,000 Brothers and 36,000 pupils. The program of the Institute met with popular approval, yet the Brothers were soon deprived of the right to teach in France. The decree of 1791 required all religious teachers to throw off the authority of Rome through taking the civil oath. The Brothers refused to take the oath, as a matter of conscience, and were compelled to abandon their schools. Two Houses continued to exist in Italy. They furnished refuge for the members expelled from France. The dispersal was a serious blow and practically destroyed the work of the Institute.

The Brothers were permitted to return to France by Napoleon in 1802. The program of the Institute again prospered. During the period between 1833 and 1933 new foundations were established in Europe, North and South America, Asia, Africa, and Australia. During the term of office of Brother Philippe, Superior General from 1838 to 1874, over one thousand new Houses were established, of which 726 were in France and 276 abroad. Teaching by Religious was abolished in France in 1904. Almost 1300 establishments of the Brothers were closed between 1904 and 1908.

The Mother House is in Rome. A Superior General and a Council of Assistants administer the affairs of the Institute. The twelve Assistants represent the interests of the sixty-three provinces or districts in the five continents in which the Brothers control schools. The latest report (1938) lists 14,435 Brothers caring for 323,077 students in every quarter of the globe. There are five provinces in the United States: Baltimore (1845), New York (1848), St. Louis (1849), San Francisco (1868), and New Orleans-Santa Fe (1918). Seven colleges, 56 high schools, 22 elementary schools and eight special institutions require the services of 1,560 Brothers to care for 33,166 students (1942). (See ROMAN CATHOLIC EDUCATION.) F.M.C.

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INSTRUCTION SHEETS. From the educational point of view an instruction sheet is a device that will assist a student or trainee to learn. In practical arts and vocational education several types of instruction sheets are used. Each derives its name from the function it is designed to serve.

Assignment sheets usually give lesson assignments. This may call for both theory and practice. *Information sheets* commonly give information that is related to the so-called practical work. To illustrate, an information sheet may deal with the topic "How shellac is made" or "How to do arc welding."

Operation sheets deal with a specific operation or group of related operations, as for example, "How to use a bench jointer," "How to grind a lathe tool," or "How to sharpen a circular saw." The preparation of operation sheets for operations that occur in a variety of jobs simplifies the task of preparing job sheets which then need not include detailed information that is available on the operation sheets.

Job sheets, as used in schools, usually contain all information essential to efficient performance of the job. They may also contain

INSTRUCTIONAL TEST — INTEGRATION

questions and references for related study. Job sheets, as has been mentioned, may be simplified by referring to information sheets and operation sheets. Job sheets for advanced workers may take the form of blue prints and specifications.

Instruction sheets of various kinds are used in industrial establishments as well as in schools for training purposes. In order to avoid the possibility that an instruction sheet, such as a job sheet designed for training purposes, might be mistaken for a job sheet used in industry for production purposes, some industries label all of the instruction sheets — assignment, information, operation, and job sheets—*Information Sheet or For Information Only*.

Work Sheets. This term may be used for any sheets of whatever nature that contain the data needed for the work to be done. For example, an operation sheet, a job sheet, a detail drawing, or an assembly drawing or blue print may each be a work sheet. F.T.S.

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W. H. MACILL, *Administering Vocational Education* (Educational Publishers, Minneapolis, 1941).

INSTRUCTIONAL TEST. A test employed as an integral part of the teaching of a unit is called an *instructional test*. It may be used as a pretest to determine the initial status of the group. It may be used also to motivate learning, to locate weaknesses requiring remedial instruction, and to provide needed practice.

Since the instructional test is a teaching aid more than an instrument for measurement, the construction and administration of such a test is largely the responsibility of the teacher rather than of the research worker. The content of the test is determined by the subject matter the class has been studying instead of the type of research that precedes the construction of a standardized test (*q.v.*). The length of the test reflects not the need for achieving statistically reliable scores but the desirability of including as many questions as are necessary to cover the important skills and facts which the student is expected to have learned as he studied the unit. Although the students' scores do represent a measure of their achievement, the teacher is more concerned with the ways in

which the test results indicate weaknesses and misunderstandings that must be corrected. Instructional tests may be administered at any point in the term's work that seems most appropriate, but they are used most frequently at the end of a unit of work.

Because the purposes to be served by instructional tests are related so closely to the procedures in each separate class, there are few published instructional tests. [*The Sangren-Reidy Instructional Tests in Arithmetic* (Public School Publishing Company) are illustrative of the published instructional tests.] C.C.R.

INSTRUMENTALISM. The philosophical theory which, based largely on biological evolution, conceives of mind or intelligence as the means whereby the organism makes its adaptation to the environment, is usually known as instrumentalism. Hence, to judge educational practices of method and curriculum from the view of their efficacy in achieving individual and social aims has also gone under the title of instrumentalism. J.S.B.

INSURANCE, TEACHERS' — See **TEACHERS' INSURANCE.**

INTEGRATION. Integration is the process by which an individual improves the functional unity of his experiences. It is the way in which he brings himself as a total organism into increasingly effective operational relationships with his environment. The quality of the functional unity over a period of years is conditioned by the quality of the process of integration. When the individual reaches a high level of integration there is an absence of internal conflicts and a tendency to solve his problems by emotional impulse. The quality in the process comes through purposeful, social, deliberative, intelligent action. Such quality promotes functional unity by aiding each individual to upbuild the logic of his experience. This improvement in organization of experience must be accomplished by each individual for himself. No other person can do it for him. Thus integration is a qualitative growth functioning of each individual.

Under this conception there are integrated personalities, but there are no integrated curriculums. All experiences tend to further or

to retard integration. They are never neutral. Personality usually refers to the way in which an individual approaches and resolves his everyday problems of living. Integrating relates to the quality of such approach. The behavior of a person with an integrating personality is based upon study, inquiry, appraisal, anticipation, and acceptance of consequences of action before and after the occurrence, all of which are unified through confidence in his ability to reach reasonable ways out of his dilemmas. Such a personality is dynamic and unique. It is not traditional and conventional. It is a powerful force for stability and security when an individual faces the novel yet critical aspects of experiences. And every curriculum by whatever name it may be called either promotes or hinders such personality development.

There is in practice a type of curriculum called the integrated curriculum or integrated program. It represents a number of subjects or activities or experiences selected, organized, and unified by adults within a framework defining the overall pattern to be achieved by pupils. Advocates argue that such a unified organization of what adults expect children to learn better aids children to improve the process of their own integration than when adults organize such learnings more loosely as in the traditional subject curriculum. Critics point out that the real *curriculum* is composed of those learnings which each individual accepts to act with, through, and on in each new experience. These frequently have little relationship to the learnings set out beforehand by adults. Since integration is a qualitative process, adults can aid children better by finding out what problems children are trying to solve and helping them to improve the process toward increasingly intelligent action. Thus adults might easily increase the percentage of integrating personalities among children as well as among themselves.

What has been said about the integrated curriculum and program also explains such terms as integrated subject matter or integrated studies. Both refer to some new unification of smaller parts of a larger program sometimes within a single subject such as history or among subjects such as history, English, and art.

L.T.H.

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INTELLIGENCE. Definitions of *intelligence* range all the way from the broad, inclusive description of intelligence as the ability to make adaptations to a changing environment to the more specific description of intelligence by Spearman as the eduction of relations and the eduction of correlates. From the content of mental tests for measuring intelligence one would infer, in the case of verbal tests, that intelligence is the ability to score on tests of vocabulary, range of general information and perception, and use of relations; in the case of non-verbal tests, one would infer that intelligence is the ability to fit blocks into holes, to complete pictures or to find what is wrong with defective pictures; in the case of aptitude tests, one would infer that intelligence has to do with quickness of manipulation, fineness of discrimination, and ease of acquiring simple skills. All intelligence tests involve the determination of levels of attainment or levels of performance. These are usually expressed in terms of age norms, that is, in terms of the levels of attainment or performance of the mid children of successive chronological age groups.

To explain the increase in scores from age to age which occurs on every type of intelligence test, intelligence is frequently interpreted as a process of maturation which takes place rapidly in the early stages, slows up at later ages, and eventually ceases. The use of such an index as the *intelligence quotient*, with its assumed constancy, implies that intelligence is some quality or characteristic of an individual which is independent of his level of attainment or performance, a rate of maturation which varies from child to child but which slows up for all children as they grow older and which reaches its limit at younger ages for the less gifted than for the more gifted children.

These views regarding the nature of intelligence are conflicting and confusing as well as lacking in definiteness and precision. Spearman's descriptive definition of intelligence as the ability to see and make use of ideas or relationships of similarity, time, place, quantity, cause and effect, etc., be-

INTELLIGENCE

tween or among sensory feelings, abstract qualities, or more and more complex ideas or relationships themselves, may be far more adequate even though limiting intelligence to a much narrower range, than the definition of intelligence as the making of adjustments to a changing environment through the perception and use of ideas.

Such fixed reactions as reflexes, instinctive responses, or habits, whether inherited or acquired patterns of motor response, are excluded from most discussions of intelligence. With changes in the environment—changes in either the physical aspects or the meaningful aspects—new responses are evoked. These may come as a result of a trial and error or trial and selective procedure, as in the forming of a simple or more complex skill; or may result from the quick seeing of what to do, as in solving a simple problem in arithmetic; or may be achieved through a longer process of abstraction, as in seeing how an algebraic process works through the solving of many exercises involving the process in varying degrees of complexity; or in creatively evolving a means of attaining some remote end, or a theory to be tried out experimentally in science. These are all recognized processes of learning, involving the use of intelligence. Even in the acquisition of a skill, what is being done at any successful change in performance may be seen intellectually and applied in further or more rapidly perfecting the performance. When we compare children of the same mental age, but of different chronological ages and therefore of different degrees of brightness, we find that they are very much alike in the kinds of ideas they have already learned, although the dull children took a much longer time to acquire these ideas than did the bright. When we present them with new things to learn, the children in the less gifted group have fewer ideas with which to analyze a situation or work out a solution to a difficulty. They need many more exposures to analyze a situation even though they have as adequate a background of information as a brighter, younger child. They also have more difficulties in the trial and selective process of thinking that is needed for the solution of some problems. To make an intelligent criticism of a tentative solution they need a wider basis of fact to reach as adequate an evaluation as the brighter

child, but unfortunately they tend to take less into account when making their judgments. The children in the less gifted group require more trials in perfecting a skill, more exercises to see how an algebraic process works, more exposures to reading situations to make the same amount of improvement in reading comprehension. These differences in rates of learning—in acquiring skills, in seeing new and more complex ideas, and in perceiving the uses of ideas—are commonly considered differences in intelligence.

In the same individual there may be differences in the rates of learning of different skills, such as skating and penmanship; or in the rates of learning different kind of ideas, such as those found in literature and those found in mathematics; or in rates of acquiring different kinds of attitudes, such as racial superiority and tolerance. There are, nevertheless, relations among these rates of learning that suggest a general rate of learning in related functions.

Conditions other than rate of learning are also involved in the attainment of higher levels in any function. While the background of ideas is an integral part of mental ability to meet new situations successfully, it is not considered an integral part of native intelligence, even though the kind and number of these ideas greatly influence the functioning of intelligence. For the acquisition of the more complex ideas in any subject the possession of an adequate sampling of simpler related ideas seems as essential as the mastery of the simpler reactions is necessary to the acquisition of a higher level of performance in a skill. These backgrounds of simpler skills and ideas may make it feasible for the more complex skills and ideas to be acquired with equal ease as were the simpler ones. The more intricate and involved ideas in the last part of algebra seem no more difficult of comprehension to the student who has clearly understood the simpler processes in the first part of algebra than were there simpler processes at the time of their acquisition. There is even a very direct relation between the proportion of complex ideas and the proportion of simple ideas that have been learned up to any level of attainment in the case of either the gifted individual or the dull individual.

There are still other conditions that influence the functioning of intelligence, such as

the number of ideas that may be held in mind at one time or the capacity to see small differences in processes or in qualities. These abilities seem more closely a part of native intelligence than the background of ideas. But the levels of these, too, are the result in part at least of the effect of familiarity with the content. The grasping of ideas which have been expressed in language and the retention of such ideas not only show intelligence at work, but also influence the functioning of intelligence.

We frequently speak of maturation in connection with intelligence as if intelligence were something like physical growth that takes place rapidly for a time, then slows up, and finally ceases altogether. This notion regarding intelligence probably came in part from our tendency to reason by analogy and in part from the fact that people become pretty well adjusted to their familiar social environment early and tend to center their learning on specialized activities soon after adolescence, or in some cases are no longer stimulated to learn at all by their social environment. The hypothesis that intelligence stops maturing even earlier than the body stops growing in height is thus due partly to the nature of intelligence tests and partly to an inadequately stimulating environment. As the more gifted children become older their attention becomes centered upon learning in some highly specialized fields which cannot be adequately sampled by the items of a general mental test. The children of average mental ability feel neither a social compulsion nor an inner urge to keep on learning in the face of their much slower progress than that of the gifted children with whom they have been compelled to compete in school and in the face of a feeling of artificiality about much that has been learned in school that has not been meaningful to them. In the case of the dull children, their drives are inadequate to overcome the monotony and drudgery growing out of the greater amount of time that must be spent by them in learning the same ideas that can be so readily learned and so much more adequately retained and used by the more gifted children. Were equally stimulating conditions for learning instituted and were the amounts learned in the specialized activities also included in the measurements, we should probably find that the same general ease of learn-

ing is maintained by the same person well on toward forty or older, and that the limit for the acquisition or modification of ideas in the case of any individual in any specialized field is fixed mainly by his normal rates of learning in that field, the amount of time devoted to learning, and the age at which serious deterioration of the cortex sets in. Changes in the structure or chemical composition of the neurones may occur at any time and may result in changes in rates of learning. However, the decreases in the amounts learned at higher ages so readily noticeable in many people are probably the result of such conditions as lack of time for learning, loss of interest, or lack of stimulation. It has become clear that the learning of certain things cannot be accomplished until either the nervous system has reached a certain age of development or until a certain background of learned reactions, simple skills, or simple ideas has been built up. Maturation in the sense of neurological development is a condition to learning. It is related to the functioning of intelligence, and also closely related to it in rate, occurring earlier in the case of individuals with the more rapid rates of later learning.

While psychologists recognize different rates of learning for different individuals and different rates of learning different kinds of skills and different kinds of ideas for the same individual, they are far from agreed regarding the bases of these differences. Though the majority are at present in substantial agreement that intelligence is fundamentally a native trait based upon heredity, they are not in agreement upon what is inherited nor upon what is the basis of intelligence. To Thorndike (*q.v.*), intelligence is based upon a large number of very specialized, independent factors, certain combinations of which may be the bases of such functions as vocabulary, spelling ability, or range of information in science. By other psychologists intelligence is considered as based on a limited number of primary abilities, each of which is relatively independent of the others. Spearman, on the other hand, has held that intelligence is based on a general factor—perhaps an amount of intellectual energy—plus several more specific factors, such as might be involved in the structure of the various sense organs and the parts of the cortex directly connected with them.

INTELLIGENCE

The amount of intelligence of an individual would depend upon the number, the combination, or the qualities of these inherited factors.

In dealing with degree of abilities, such as the ability to comprehend what is read or to spell correctly, there is the part due to maturation or the organic development of the nervous system that is essential for learning, the part due to the immediate condition of the nervous system, the part due to the effect of drives in keeping the individual attentive to ideas and persevering in the practice of a skill, the part due to the effect of the environment in presenting learning situations, and the part due to the effect of the background of acquired skills and ideas represented in transfer of learnings. The cumulative effect of all these factors over a period of years represents what is indicated by the intelligence test score when expressed in terms of mental age.

It is seen, therefore, that since the quality of functioning intelligence (and intelligence can be observed only as it functions) is necessarily due both to the environment and to the organism as it was at birth, controversy can arise as to how fixed a characteristic the quality of intelligence is. Those that uphold the theory of intelligence as a fundamentally innate quality insist that individuals who show changes of brightness or dullness have not actually changed in intelligence. What has happened is that the environment has become either more or less favorable for the showing off of that intelligence. This concept of innate intelligence can be compared with the concept of the sharpness of a knife blade. It is of a certain degree of fineness but seems more or less fine as the conditions of cutting change. However, while it is taken for granted that the fineness of the blade can be actually and permanently changed, many psychologists deny that a similar real change in intelligence can also take place.

Intelligence Tests. Intelligence tests were first developed to meet the very practical need of selecting the children who would be unlikely to succeed in school work. The main uses of the individual mental examination are still found in the selection of children of low mental ability for segregation in institutions or for special classes in the public schools or in confirming the desirability of

retaining backward pupils in the same grade in school for another year. However, increasing use is being made of tests for the selection of very bright pupils for special education. Group tests are used mainly for ability grouping.

The first individual mental examination was constructed by the French psychologist, Alfred Binet, at the beginning of the present century. When originally published (1904) it consisted of a series of tasks graduated into age levels on the basis of the production of children at each age level who were able to do them.

In the United States the development of the individual mental examination was carried forward by two American psychologists working independently: Dr. Lewis M. Terman (*q.v.*), who published the "Stanford Revision and Extension of the Binet-Simon Intelligence Scale" in 1916, and Dr. F. Kuhlmann, who published "A Revision of the Binet-Simon System for Measuring the Intelligence of Children" in 1912 and "A Further Revision and Extension of the Binet-Simon Scale" in 1922. In both of these individual mental examinations, the tasks were arranged in age levels on practically the same basis as that used by Binet except that larger numbers of cases and more refined statistical techniques were used in the location of the tasks. The mental age was likewise determined in the same manner although the technique of determining it was improved. In addition to a wider and more careful selection of tasks the suggestion of Stern that the ratio of the mental age divided by the chronological age be used as an index of intelligence—the intelligence quotient (*q.v.*)—was adopted by both Kuhlmann and Terman. In 1937 a revision and refinement of the earlier Stanford Revision was published by Terman and Merrill under the title of the "New Revised Stanford-Binet Tests of Intelligence," while in 1939 Kuhlmann published his "Tests of Mental Development," a revision and extension of his 1922 revision of the Binet-Simon Scale, based on two basic principles of Binet but containing none of the original Binet tests. In the "Tests of Mental Development" Dr. Kuhlmann introduced a new index of intelligence, the *per cent of average*, based upon a refinement of the Heine growth curve.

Another development quite different from

those based on Binet's work is seen in the *Minnesota Pre-School Scales* for younger children. In these scales, one a verbal scale and the other a non-verbal scale, the tasks are arranged in a series of equal steps based on the assumption of a normal distribution of the functions measured in successive age groups. In these scales the measure indicates the level of difficulty at which one-half of the tasks attempted can be done correctly. This measure, which resembles the number of inches of height on a yard stick, is convertible into an age level for interpretative purposes. In place of the intelligence quotient, an index indicating the pupil's placement among children of his own chronological age is used.

In the individual verbal tests, the child may be asked to name familiar objects, to point out a named picture, to compare weights, to find missing parts in pictures, to describe pictures, to state in what way two things are alike, to repeat digits, to repeat digits backwards, to arrange jumbled words into sentences, to solve certain problems, to define given words, and to say as many words as come to mind within one minute. For very young children and for children that have language disabilities or speak a foreign language, *performance tests* are usually used in place of a verbal intelligence test. The Minnesota Scale mentioned previously contains a performance test and the Merrill-Palmer Scale, also for preschool use, contains both verbal and performance items. Probably the best-known performance test of intelligence is the Pintner Patterson which consists of a series of graded form boards into which the child must fit the corresponding sets of forms. Other performance tests ask the child to fit a nest of cubes together, to build a block tower, to trace mazes, to complete pictures, to assemble parts into an object, etc.

Most of the responses to items on individual mental tests are scored for quality, rather than being scored merely right or wrong. On form-board tests, for example, the child receives some credit if he lays the part across the hole in which it belongs rather than fitting it into the hole. Quality is judged in terms of the age level for which the task is set. The various individual tests of intelligence do not correlate perfectly with each other. Between some verbal tests and

some performance tests the correlations are as low as $+0.30$.

Tests for very young children often include items for which the child is watched rather than tested, items related mainly to motor and manual development and coordination, e.g., can walk alone, can walk downstairs alone, can grasp small pellet, etc. When the whole test consists of such items it is called a *developmental scale*, rather than a test of intelligence. Age norms are developed for such scales usually in terms of the average age at which children can perform these behaviors.

As the individual mental examination takes from half an hour to two hours to administer and can be given adequately only by a skilled clinician, there developed among school people a demand for an instrument that would be less costly to use. In response to this demand the *Otis Group Intelligence Scale* was developed at Stanford University. Shortly afterwards the *Army Alpha Test* for use with adults was developed by a committee of psychologists for use in the army. These were followed a few years later by other group tests of intelligence such as the *Terman Group Test of Mental Ability*. In these groups tests of intelligence the items were almost entirely verbal ones, involving an understanding and reading ability of language. Each test consisted of several groups of different kinds of tasks with the tasks in each group arranged in order of difficulty, with specific directions for administration and specific time limits for each test. The score consisted of the number of items correctly done on all the groups of tasks regardless of their differences in kind. On the basis of median scores for consecutive chronological age groups these total scores could be converted into mental ages, and the intelligence quotient found just as in the case of the individual mental examinations.

The vast majority of group tests are verbal though a few are not. Even in the latter cases, however, the directions in most instances must be given in words. Items on verbal group tests ask the subjects to add numbers to a group which have been arranged in a certain type of series, to complete analogies, to distinguish between opposite and synonymous pairs of words, to do arithmetic examples, to complete sentences with one of a set of given words, to choose

INTELLIGENCE QUOTIENT

the best answer for items of general information, to give common attributes of specified nouns, to classify by crossing out the word which doesn't belong in the given group, to mark true or false sentences in which words have been jumbled, to follow oral or written directions in the placing of crosses in certain specified symbols or parts of symbols, etc.

A later development in the group tests involves the use of the techniques evolved in the development of the educational scales for measuring attainment in the various phases of school work. In these tests the items are not only arranged in order of difficulty in the sub-tests but they are evenly spaced in difficulty on the basis of the proportions of a normally selected group of children of the same age or grade who give correct answers. The child's score on the test indicates the level of difficulty at which one-half of the items attempted are known. These measures can be determined for each function or kind of items or for the test as a whole, and can readily be interpreted in terms of age norms where this is desirable. Not only can intelligence quotients be obtained from these tests but indices indicating the child's placement within his own chronological age group in terms of a measure of variability can also be determined for each of the separate tests as well as for the test as a whole.

Very few of the group mental tests used in schools, however, have advanced in technique of construction beyond the Army Alpha Tests except in ease of administration, ease in scoring, or more adequate selection of content. In most of them the score is still the total number of items correctly done converted into an age level. In very few of the group tests do the scores have the definite, consistent meaning of the level at which the answers to half of the tasks attempted are known, as in the case of the individual mental examinations. The main advances during the last two decades have been in techniques of construction and in the selection of content for the purpose of predicting success in some specialized function, as in the *Seashore Tests of Musical Talent*.

The intelligence test has found its greatest use in selecting the less able pupils for special treatment. It is used, too, for selecting the more capable pupils for more ex-

tended educational opportunities as in the case of the college group. It is also used in connection with achievement tests to discover the quality of work that pupils are doing in school; whether they are reaching only about average attainment for pupils of their mental level, higher than average attainment, or lower than average attainment. (See ACCOMPLISHMENT QUOTIENT, CLASSIFICATION OF STUDENTS, INTELLIGENCE QUOTIENT.)

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INTELLIGENCE QUOTIENT. There are two common measures for expressing the quality of intelligence that any individual possesses, the mental age (M.A.) and the intelligence quotient (I.Q.). The mental age is an expression of the stage of mental maturity that the individual has reached, without regard to how long it has taken him to reach it. The intelligence quotient expresses the rate at which the individual is developing mentally as compared with the average rate of the population. A child's mental age is found by giving him an intelligence test and stating his score in terms of the average chronological age of large groups of children who have taken the test and made the same score. A child's intelligence quotient is found by obtaining the ratio of his mental age (M.A.) to his chronological age (C.A.). If

INTELLIGENCE QUOTIENT

the M.A. and the C.A. are the same, then the ratio, or I.Q., is 100 and the child is considered to have average intelligence.

Theoretically, this means that he grows "one mental year" for every calendar year that he lives until he stops growing intellectually. If the child has an I.Q. of 130 he theoretically grows 130 per cent of a mental year every calendar year, thus continually widening the distance between his M.A. and his C.A., with M.A. in the lead until he stops growing mentally. The child with an I.Q. of 60 also keeps widening the distance between his M.A. and C.A., but the difference is in the opposite direction since he gains only 60 per cent of a mental year for every calendar year that he lives. Thus it is seen that if the I.Q. were absolutely fixed, that is if it did not change from year to year (and if the child scored exactly the same M.A. on intelligence tests which he took not more than a few days apart, a statement which is not true), and if we knew at exactly what age intelligence stops growing (which we do not; the age is at present set variously from 16-22 and seems to differ for different individuals), then we could predict exactly a person's mental ability during adulthood.

Some of the factors which make for change in the I.Q. are test factors. As was indicated above, children do not score at the same mental age on different intelligence tests. This is notoriously true of group tests, but it is also true of individual mental examinations administered by a skilled clinician. When the tests are of radically different type, for example verbal tests and performance tests, the difference in mental age obtained by the same child on the same day may be considerable. Naturally, then, when a child is tested several times, a year or more apart, there is no reason to expect his I.Q. to remain constant if different intelligence tests are used. This is one argument that has been used to discount the changes in the I.Q. which some psychologists have found when children were placed in a different environment from that which they had experienced when first tested. However, the counter argument is brought forward that when the changes in I.Q. are consistently gains, rather than being divided equally into gains and losses, then the test factor cannot be the only factor operating to bring about the changes. These arguments and counter arguments are at present directed

mainly at the conclusions drawn by Stoddard and Wellman from studies of pre-school children. Another argument used is that intelligence tests given to children below the age of six are not reliable. The same counter argument holds here, namely that test unreliability cannot result in consistent gains in I.Q.

Consistent changes in I.Q. at higher age levels have also been found, and they have been in the direction expected from the hypothesis that a favorable environment tends to raise the I.Q., an unfavorable one to depress it. Though as many studies can be brought forward which fail to show consistent changes, it is important to note that in all studies changes in I.Q. (even with the same test used, e.g., Stanford-Binet) have been found. Theoretically, these changes have been most often interpreted as being due to test unreliability. It is expected that children will vary from year to year within 10 I.Q. points in either direction. When, however, the same child keeps varying in the same direction year after year, or groups of children describable by some common factor of education or environment show a group variation decidedly in one direction, then the argument that the changes in I.Q. are due solely to test unreliability can be challenged.

Those psychologists who uphold the theory of intelligence as a fundamentally innate quality insist that individuals who show changes of brightness or dullness have not actually changed in intelligence. What has happened is that the environment has become more or less favorable for the showing off of that intelligence. This concept of innate intelligence can be compared with the concept of the sharpness of a knife blade. It is of a certain degree of fineness but seems more or less fine as the conditions of cutting change. However, while it is taken for granted that the fineness of the blade can be actually and permanently changed, many psychologists deny that a similar real change in intelligence can also take place.

Psychologists who do not premise fixity of quality as one of the essential characteristics of intelligence claim that it is impossible to understand what is meant by a quality that is seen to change and yet is considered as non-changeable. They argue that if a child over a period of time improves his in-

INTELLIGENCE QUOTIENT

telligence score, then it makes no sense to say that he was that bright in the first place only "it didn't show up." If intelligence tests measure intelligence, then changes in intelligence quotients mean changes in the quality of intelligence.

Though these two camps are decidedly far from agreement at present, the fact that the question of fixity of intelligence is put in terms of the constancy of the I.Q. means that the hypothesis of change can be scientifically explored. What is needed is the repeated measurement of the intelligence of many children over a period of years, using comparable tests. Moreover, the children should not all remain in the same environment throughout these years. What must be determined is how constant the I.Q. is when the child is left essentially in the same environment, and how constant it is when the child has been removed to a radically different environment. It should be noticed that the question is not put in terms of whether there are differences in intelligence at birth. That children are not born alike in all characteristics is taken for granted. That the child at birth already has some characteristics which are related to the quality of intelligence which he will soon display is also understood. The current disagreement among psychologists is in terms of the rate of development. Since intelligence grows or matures, it is the constancy of the rate of growth that now forms the subject of controversy.

Data found to date can be summarized by saying that of children who have been tested several times, a large number have shown changes of a size to be expected because of test unreliability but, when this is taken into consideration, have not changed their rate of mental growth (I.Q.) substantially. Other children, however, have made and maintained substantial gains, while others still have shown substantial, even progressive, losses. A substantial change does not mean a change from genius to dullness, or the other way round. So few studies have tested the same children at least three times in succession that there is little data to indicate how many individuals maintain their gains or losses. Furthermore, when changes are reported as group gains or losses one cannot determine how many individual children showed fluctuations in I.Q. Studies which do report the

percentage of subjects who showed I.Q. changes of specified amounts have been studies of two testings only, so that there is no way of determining what the fluctuations would have been on a third testing. While it is impossible, when there have been only two testings, to tell whether an individual child's change in I.Q. is a real change or is due solely to the inaccuracy of the tests, it is important to note that such changes are sufficiently common and sufficiently large to question the practice of describing a child's intelligence from the results of a single test. In one study after another, involving thousands of children, approximately 50 per cent of the children are found to vary more than five I.Q. points on the retest from what they scored on the first test, while about 20 per cent vary 10 or more points in I.Q.

Taking various investigations which have attempted to study the effect of different environmental variables on I.Q., and reporting the results obtained by the authors in terms of their own analyses of their data, we may summarize the findings as follows:

1. Prior to the age of 6 there is much more fluctuation in I.Q. than after that age.

2. Children in certain nursery schools showed a group gain in I.Q. after attendance at the school, children in other nursery schools did not show such a group gain. In all the schools some of the children lost I.Q. points while others gained. The reputations of the nursery schools which did and did not show gains were often equally good.

3. Studies of gifted children show that the vast majority of them maintain their high I.Q. status. A number of investigators have found that bright children increase their I.Q.'s at successive testings.

4. Feeble-minded children generally show a decrease in I.Q. with age. In certain cases where a special environment and education was provided, very little decrease was in evidence. Some investigators report that under certain "enriching" conditions feeble-minded children have shown gains in I.Q.; others report that enriching conditions have had no such effect.

5. Of four elementary schools, all rated of high quality, and in all of which the pupils were above average in intelligence, two showed no reliable group gain in I.Q. after several years of attendance, two schools did show a reliable gain.

6. Many studies which try to investigate the effect of environment on I.Q. do not do so by successive testing of the same children. Rather they compare the I.Q.'s of children who have been exposed to the same environment for different periods of time. Thus, the I.Q.'s of children living in impoverished environments, such as canal boats or river boats, are compared with the I.Q.'s of their older siblings; the I.Q.'s of children confined for the most part to the four walls of an institution, such as certain orphanages, are averaged separately for those who have lived in the institution for different numbers of years. In the majority of these cases, the mean I.Q.'s progressively decrease as the groups have lived longer in the meagre environment.

Even from the short summary given here, it is seen that it is impossible, at present, to decide conclusively to what degree I.Q. fluctuations are due to test unreliability and to what extent real changes occur. The evidence so far does point to the conclusion that very large changes in I.Q. are not to be expected. Whether real changes from 5 to 15 I.Q. points can be deliberately brought about and maintained seems at present to be very much of an open question. Those who already answer the question in the affirmative add that the time when such change is most easily brought about is in the early years. Those who are equally convinced that the answer is negative mainly discount the possibility of adequate measurement of intelligence during these early years and therefore maintain that it is impossible to know whether intelligence is being improved during this time. All investigators agree that the controversy cannot be resolved unless large numbers of children of varying I.Q.'s are brought up in a psychologically rich environment and tested at regular intervals over a period of years. B.B.F.

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INTELLIGENCE TESTS—See INTELLIGENCE.

INTENSIVE READING—See READING, EXTENSIVE.

INTERACTIONISM. There are two senses in which this term is employed in education. The older one stated the psychological or philosophical theory that, in spite of the difficulties involved in the dualism, an immaterial mind could affect and be affected by—interact with—a material body. The newer one states the theory that education is not so much a reaction of the child to his environment as an *interaction* between the two. Thus a habit may be said to belong as much to the stimulating environment as to the child.

J.S.B.

INTER-AMERICAN UNIVERSITY OF THE AIR—See RADIO IN EDUCATION.

INTER-CLASS VISITATION. *Inter-class visitation* usually refers to the practice of one teacher's visiting another teacher's class as a means of improving the quality of teaching of both. The stimulus of having a colleague watch the conduct of one's class is counted as very important in leading a teacher to put forth his best efforts and to keep up with the best practices in his field. Likewise, the stimulus that comes to the visiting teacher from seeing how a colleague carries on work in a related or somewhat different field is thought to be of considerable value. Perhaps the most important outcome of all is the opportunity for both teachers to discuss critically their common problems and to help each other in areas in which one may be strong and the other weak. Much of the success of such a plan depends upon the informal spirit of friendly cooperation and mutual respect that a school is able to instill among its faculty members. Failing such an atmosphere, the practices of inter-class visitation may fall into the ruts of formality, indifference, or suspicious hostility. Much can be achieved if teachers, with the help of capable supervisors, are planning the work and the curriculum of the school together and are even teaching some classes jointly. R.F.B.

INTEREST, MANY-SIDED—INTERSCHOLASTIC COMPETITION

INTEREST, MANY-SIDED. It is Herbart's merit to have used the concept of interest, well known to the educators before him, as a basic issue for systematic educational research and practice. Interest—he says—in order to motivate the child sufficiently for learning and personal development, needs depth (*Vertiefung*) and many-sidedness (*Vielseitigkeit*). Uncoordinated and flighty interests lead only to instability and self-indulgence, whereas merely one-sided interest would render a person narrow and illiberal. The demand of both many-sidedness and depth of interest leads Herbart to ask on the one hand for a systematic, coherent and broad curriculum, and on the other hand for the refusal of all merely encyclopedic learning. (See HERBART.) R.U.

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INTERMEDIATE COUNTY SYSTEM

—See COUNTY SCHOOL SYSTEM.

INTERNATIONAL EDUCATION, INSTITUTE OF—See SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

INTERNATIONAL SCHOLARSHIPS AND FELLOWSHIPS—See SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

INTERNSHIP PLAN OF TEACHER EDUCATION. An interne teacher is usually regarded as one who has completed the formal requirements for teaching and who is engaged in the first year of actual teaching. The aim of internship is to give practical experience on the job in a way that will provide for the new teacher a gradual transition into the responsibilities of full-time teaching. Internship also gives the young teacher supervisory help when it is most needed, allows considerable time for further professional growth before the interne becomes a full-fledged teacher, and provides a period of probation and evaluation of his work.

An interne often does not carry a full-time teaching load, and thus receives that proportion of a regular salary which corresponds to the length of time he teaches. He may or may not continue college work during his internship, depending on the plan under which he operates. In general, the interne receives spe-

cial supervision during the year either from the college or institution where he received his preparation, or from the school system in which he is engaged, or from both in cooperation. To be most successful, an internship plan usually requires planned cooperation between a school or school system and the institution of teacher education. (See TEACHER EDUCATION.) R.F.B.

INTERSCHOLASTIC ATHLETICS—See ATHLETICS; INTERSCHOLASTIC COMPETITION.

INTERSCHOLASTIC COMPETITION. Interscholastic competition exists in both curricular and extracurricular activities in secondary schools; in colleges, almost entirely in extra-curricular activities. In some states state-wide contests are held for high school students in the form of written examinations in most curriculum subjects. Music contests, especially, are prevalent for individual student musicians, bands, orchestras, and choruses. Some states have music-recognition contests for which students are taught to recognize any part of one hundred or more compositions. Among extra-curricular activities the chief competitions are forensic and athletic. (See ATHLETICS; DEBATING.) State-wide high school debating leagues and eliminations, as well as declamation contests, are common. The individual contests among colleges may be interstate. Some debating teams travel the length and breadth of the nation to meet opponents. Such activities are promoted not only by colleges themselves but by national forensic fraternities like Delta Sigma Rho and Phi Kappa Delta, the American Legion with its national Constitution contests, and regional organizations in all parts of the country. Athletic competition gets still more prominence. Football, basketball, and track are especially popular, though teams compete in most other sports as well.

It is difficult to appraise interscholastic competition, for its results are various and far-reaching. It stimulates interest, self-discipline, and high-quality performance, not least in many institutions and communities where the activities might otherwise not exist. It promotes communication among institutions and students, with an accompanying breadth of experience and sense of national unity.

Football in particular has also brought money for the development of other sports. On the other hand, many educators wish to lessen interscholastic competition and to encourage intramural activities. This trend has apparently arisen because interscholastic competition has been open to only a small percentage of students; because it tends to become commercialized; and because the great publicity, attendance, and accompanying social events distract attention from the primary purpose of educational institutions. (See EXTRACURRICULAR ACTIVITIES.) M.G.F.

INTERVIEW. The interview is used in a variety of ways in education. As an informal device in the hands of the teacher it is used to inquire into pupils' learning difficulties, interests, attitudes, background, etc. It is employed also in conferences between teachers and parents. The counseling interview and the social or psychiatric case interview, although giving an appearance of spontaneity, are likely to be carefully planned, and conducted according to principles that have been developed by trained workers.

The interview has been widely utilized in the selection of teachers. In the case of competitive examinations, as are held by boards of examiners in certain cities, the interview is conducted as part of the examination to ascertain fitness in areas not covered by other means, such as a written examination.

The research interview is employed as a method of securing the judgment of experts as well as a device for gathering information. Because of the complexity of educational problems and the diversity of circumstances under which educational agencies function, it is rarely possible to achieve adequate knowledge of a significant educational phenomenon without consulting the experience or information of persons in the field. The interview, when properly executed, may be an effective and indispensable instrument of research.

Although each interview must be conceived and conducted according to its peculiar purpose and the circumstances surrounding it, several suggestions are generally applicable. First, rapport and cooperation must be assured; that is, the interviewer must develop the type of relationship with the person being interviewed that encourages that person

to speak freely because he is convinced that the interviewer is sympathetic and understanding. Second, a well planned schedule of questions or matter to be covered must be prepared in advance of the interview. Third, the questions and the approach used must be modified during the interview to meet varying conditions. Fourth, the interview must stimulate but not suggest responses lest the interviewer be led astray by too cooperative subjects who wish only that the interviewer receive the kind of information he is seeking, regardless of fact. Fifth, an objective but inobtrusive method of recording data must be employed, since too obvious a procedure for recording responses may inhibit the free expression of the person being interviewed.

An extensive literature on the conduct of the several types of interview is available. (See GUIDANCE; RESEARCH, EDUCATIONAL.) H.H.A.

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INTRA-MURAL ATHLETICS — See ATHLETICS.

INTRINSIC METHOD (READING)— See READING, METHODS OF TEACHING.

INTRINSIC MOTIVATION—See MOTIVATION.

INTROSPECTIVE PSYCHOLOGY — See PSYCHOLOGY, SCHOOLS OF.

INTROVERSION denotes the tendency of being subjective-minded or being preoccupied with one's own thoughts and feelings. The term is applied to both an attitude and a type of personality. The introvert tends to resort to daydreaming and imaginative processes when confronted with problems. He shies from frontal and active attack.

The *extrovert* type is the theoretical opposite of the introvert type. The extrovert is more dominant, more active in group projects, and more objective minded, while the introvert is more introspective and more inclined toward quiet seclusion. The extrovert is more

INTUITIVE GEOMETRY — INVENTORY

inclined towards sports, games, directing social and business enterprises, or exercising overt leadership roles. The introvert is more likely to be the industrious student, the author, and editor, or the person interested in the fine arts.

Jung's suggestion of introvert and extrovert types has led to much confusion and inability to arrive at any stable definition. Except in extreme cases, both the introvert and the extrovert are normal. In fact, these two types can seldom be clearly differentiated, as an individual may be more introverted at certain times than at other times, more introverted in certain activities than in other activities.

An *ambivert* is an individual whose personality has a moderate degree of the subjective withdrawing of the introvert and the objective outgoing interests of the extrovert. This characterizes the "average" individual whose attitudes are neither excessively withdrawn nor socially overdeveloped.

The teachers' attitude toward introversion in children has been changed markedly in recent years. Traditionally, teachers have ignored introversion as a source of emotional difficulty; indeed, the child who kept to himself and spent his afternoons in reading was often hailed as the model child whose behavior should be emulated by his more active classmates who were always getting into trouble by talking among themselves during school hours. Wickman, in his widely quoted study comparing the teachers' evaluation of child behavior with that of specialists in child guidance, found that teachers attached more significance to extrovert types of behavior than to such withdrawing reactions as shyness, fearfulness, and sensitiveness.

One of the results of the growing interest in mental hygiene in education has been the increased prominence given to marked introversion as both a symptom and a source of emotional maladjustment. Psychiatrists, aware of the fact that the extreme extrovert ordinarily attracts so much attention to himself that his problems are not allowed to go unnoticed, have pointed to the adjustment difficulties which are complicated by extreme introversion. Since the traditional school tended to exalt introvert behavior and to inhibit extrovert behavior, psychologists and psychiatrists have urged the wisdom of a change in the teacher's set of values. These

suggestions have been misinterpreted by some teachers who now regard all introvert behavior as undesirable and who fail to see that both introversion and extroversion are normal traits. The recommendation that teachers not ignore the emotional problems of the introvert has sometimes led to the teacher's regarding even a mild degree of introversion as a symptom of inevitable emotional breakdown.

C.E.S. and J.F.B.

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INTUITIVE GEOMETRY—See MATHEMATICS, TEACHING OF.

INVENTORY. The *school inventory* is a complete record of all items of school property, giving the description, location, and value of each item, and serving the following purposes: (1) it makes possible the maximum use of equipment and supplies; (2) it assists in preventing unnecessary purchases; (3) it indicates items in need of repair and those needing replacement; (4) it aids in determining values and in adjusting insurance claims; (5) it provides available records for use in determining depreciation, in calculating school costs, and in making the budget; and (6) it impresses upon school officials and employees the necessity for the proper use and care of the property. The inventory is of primary importance in school property management, since efficient management requires adequate records. Principals and teachers of most school systems make annual inventories on forms provided for the purpose.

A *perpetual inventory* is a continuing up-to-date record of all property, giving descriptions, locations, and values, together with information concerning condition, disposition, and use. The perpetual inventories are usually kept in the administrative offices where they may be referred to easily. This kind of inventory should be filed in visible

record files—trays containing pockets in which large cards may be inserted. The cards, eight by nine inches, are especially ruled to provide space for a brief description, amount, location, price, and present condition of each article. The perpetual inventory, by means of withdrawal slips, shows all transactions affecting each item and gives an accurate case history for each article carried in stock.

Textbook inventories check titles, authors, publishers, condition, and number of books in storage and in use in each room, and the disposition of books not in use. The textbook inventory is especially useful in checking requisitions and in the distribution of instructional materials; it is required in states that provide free textbooks.

L.E.M. and M.F.S.

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ITALIAN, TEACHING OF—See MODERN FOREIGN LANGUAGES, TEACHING OF.

ITALY, EDUCATION IN. Modern Italian education can be better understood against the background of the political history of the country. It was not until 1870 that Italy was unified under the leadership of the King of Piedmont. The Piedmontese statutes became laws of the new country and were substituted for the different laws of each small state. In most of these states there had not been a school system. Except for universities, education had been entrusted mostly to religious orders and to private initiative and was usually the privilege of the well to do.

In the first decades of the kingdom the aims of educators and legislators were the fight against illiteracy, the spreading of scientific and technical education, the separation from the Roman Catholic Church, and the strengthening of an educational system

inspired by the principles of social and human progress. Instruction in the elements of the duties and rights of the individual were substituted for religious education and spiritual direction. Education was expected to develop and satisfy the interests of the child toward concrete and perceptible facts, and to create in the pupil a second nature by developing fixed habits. A. Gabelli, A. Angiulli, R. Ardigò and L. Credaro, all of them connected with the positivistic philosophy, were the most representative educators of this period.

The early years of the twentieth century saw the beginning of the new Italian idealism. The new philosophy gradually pervaded the schools of education; however, school curricula and legislation were still inspired by the old trends.

The Italian school system underwent a decisive shift in policy in 1923, when Giovanni Gentile, the well known philosopher, who is considered with Benedetto Croce the representative of Italian idealism, was minister of education in the first Mussolini cabinet. This shift, which is known as the Gentile Reform, was considered as a stepping-stone in the history of Italian education. It was the aim of the new laws to reconcile in the concrete reality of the school two opposite trends, that is, the free development of the child's and teacher's personality, and the strict subordination of youth and of the school system to the national ideals and goals. According to Gentile's philosophy, education is the "spontaneous development of the pupil in relation to his cultural environment," and it requires the intimate and profound union of pupil and teacher. The process of education is not a process of teaching and learning; it is the progressive acquisition by the individual of the consciousness of his spiritual value and creative power. On the other hand the state, being "an ethical entity" and representing a moral life to be realized, "teaches and must teach." "In the school the state itself becomes real." The reconciliation of these opposite principles can be reached only through an ideology which postulates that the individual cannot attain his full reality outside of the collective life of his nation.

In fact, the tendency of education in Italy during the last twenty years has been an

ITALY, EDUCATION IN

ever-growing subordination of the educational system to Fascist ideas and to the need of the totalitarian state. The most important steps in the Fascitization of the Italian schools were the centralization of the administration, which began in 1923 and was completed step by step; the adoption of the state textbook in the elementary schools (1929), and the control of the ministry of all textbooks for secondary schools; the transfer of elementary schools from municipal administrations to state (1933); the establishment of the *Opera Nazionale Balilla* (National Youth Organization) intended to promote the physical, political, premilitary, vocational, and religious education of Italian youth (1923), and the compulsory registration of all pupils and students in the organization; the establishment of the Fascist Academy of Physical and Youth Education (1927) for the training of a specialized body of teachers, better qualified to indoctrinate the young generation; the regulations enforcing the teaching of military instruction in all schools (1935). Enforcement of religious instruction first in elementary schools (1923), and later in secondary schools (1929), after the treaties with the Holy See, has to be considered a distinctive trait of the new educational trends in opposition to the principles of the pre-fascist era. Some of the above mentioned regulations represent a further development of the Gentile Reform; others appear to be in open contrast to the basic principles of Gentile's philosophy which, however, had paved the way for this development.

The Educational Charter, issued in February 1939, with the approval of the Fascist Grand Council, synthesizes the principles which should have inspired a further and more radical codification of Fascist education, if the enforcement of the new law had not been postponed because of the war. The following quotation summarizes the ideology underlying the Charter: "In the Fascist regime the school age and political age coincide. Schools, the GIL (*Gioventù Italiana del Littorio*, i. e., Fascist Youth Organization) and the GUF (*Gruppi Universitari Fascisti*, i. e., Fascist Groups of University Students) together constitute a single instrument for Fascist education. Compulsory attendance in these makes up the scholastic service which

inspires the citizens from the earliest age to the age of 21." The implementation of the Charter was postponed on the outbreak of World War II.

The Minister of Education is the chief executive in the Italian school system. He is appointed by the King and is responsible to the Prime Minister. In his legislative and administrative rôle the Minister is assisted by various councils and commissions, and by a body of inspectors. The most important of these councils is The Higher Council of National Education, whose 54 members are appointed by royal decree on the proposal of the Minister. The secretary of the National Fascist Party is a member *ex officio* of the Council. The departments of the Ministry of Education are (1) Higher Education; (2) Classical Scientific and Normal Institutes; (3) Technical High Schools and Institutes; (4) Elementary Education; (5) Antiquities and Fine Arts; 6) Bureau for General Affairs, Personnel, and Libraries. Universities and institutes of higher education, as well as music and arts schools, are administered directly by the Minister. All other types of schools are controlled by the Ministry through the Royal Supervisor. The supervisors are assisted by a Disciplinary Council and by School Inspectors and Educational Directors, and share with them their administrative and disciplinary responsibility. The chief educational officer in every school is the Director or the Principal.

Although several provisions of the Gentile Reform were intended to favor private schools, governmental schools far outnumber private schools of all types. The greatest share of the support of the school system is borne by the government, notwithstanding the fact that a number of universities, industrial high schools, and institutes are in part supported by private and local organizations and councils.

Only elementary education is free. Fees are very low in the prevocational schools (*Scuole di Avviamento Professionale*). For all other schools there are admission, matriculation, promotion, and examination fees. Partial or total exemption from fees is granted to honor students and to children of large families. According to the law, school attendance is compulsory for children between the

ITALY, EDUCATION IN

ages of 6 and 14; however, the mechanism of enforcement is seldom utilized.

Only a limited number of kindergartens take care of part of the children of pre-school age; in the school year 1936-37 there were 9589 kindergartens in the whole country. The regular elementary course consists of five school years. Children who have satisfactorily completed the highest grade available in their community and who are not yet 14 years old are exempted from further school attendance. This means that in the great majority of the rural sections children are not expected to attend more than the third or fourth grade of elementary school. In the school year 1936-37, for which official reports representative of the close of the pre-war period are available, there were in Italy 129,580 governmental elementary schools and 7067 rural schools. Out of 5,341,125 children of school age (between 6 and 14), 4,771,453 attended public elementary schools, and 265,915 rural schools.

After completing the elementary school, children below 14 who do not register in high schools are expected to attend prevocational schools (three years) or prevocational courses (two years or one year). In the same year (1936-37) there were 616 Royal Prevocational Schools (295 of the commercial type, 226 of the industrial and artisan type, 93 of the agricultural type, and 2 of the nautical type), with a total enrollment of 167,960 children; 144 private approved prevocational schools (mostly of the industrial type) with a total enrollment of 16,928 children; and 767 Royal Prevocational Courses (mostly of the agricultural and industrial type) with a total enrollment of 39,824.

Secondary schools are classified in two groups. In the first group are (1) the classical gymnasium-lycée (8 years course: 5 years gymnasium, 3 years lycée) which is still inspired by the principles of humanistic education, offers a curriculum where classical languages, history, philosophy, and literature are the basic subjects, and which is intended to prepare for universities those who will constitute the leading class of the nation; (2) scientific-lycée, a 4 years course offered after 5 years of gymnasium, to students who will qualify only for the scientific and technical faculties in universities and schools of higher education; (3) normal in-

stitutes, a 7 years school intended for the training of elementary teachers. In the school year 1936-37 the total enrollment in the above mentioned schools was 307,460, the majority of the students attending the Gymnasium-Lycée and the Normal Institute.

Under the heading of technical education are included technical high schools and technical institutes. The great majority of technical high schools are of the industrial and artisan type, and grant a diploma of skilled worker or artisan after a three-year course. Commercial and agricultural high schools award diplomas of bookkeeper and of rural agent. Technical institutes (4 years lower course and 4 years higher course) are intended to train young people for higher clerical positions and for technical professions such as accountants, surveyors, technical and agricultural experts with various specializations, shipbuilders, etc. The total enrollment in technical schools and institutes in the same school year was 320,861. Although technical schools are controlled by the Ministry of Education, organizations representing employers and employees exert a strong influence on the policy and management of schools intended for the education of industrial workers. Besides the full term schools, continuation schools on a limited scale are open to artisans, skilled and unskilled workers, and agricultural workers. Schools and institutes for artistic education were entirely reorganized in 1933. They include artistic lycées and academies of fine art, various types of schools and institutes of applied and industrial art, approved musical lycées, and conservatories.

Whereas elementary schools for boys are separate from elementary schools for girls, all secondary schools are coeducational except for those of the industrial type and for a few Women's Normal Schools where home economics and sewing teachers are trained. Admission to every kind of secondary school, admission to the higher course of each school, and graduation are attainable only through uniform national examinations.

According to the Gentile Reform universities were intended to give general scientific training and were granted broad autonomy in administration and teaching. Every faculty was permitted to establish its own curriculum, provided certain requirements as to

ITALY, EDUCATION IN

number of credits and basic courses were met. Through national examination professional licenses were granted to applicants who had obtained the required degree. In recent years, however, the autonomy of the university faculties has been entirely destroyed. The control exerted by the Ministry of Education and the Fascist Party, and the requirements set for "political and moral fitness" have increasingly limited the choice of professors and instructors.

In the school year 1936-37 there were in Italy 71,944 university students, most of whom were registered in law schools, medical schools, and schools of economics and commerce.

Adult education is entirely entrusted to the OND (*Opera Nazionale Dopolavoro*; National After-Work Organization) which is controlled by the Fascist Party and is considered as a semi-official organization. The OND absorbed all private organizations that previously had carried on popular education, those intended to fight illiteracy in the rural and southern sections as well as those that were especially directed to spread technical and scientific information in the working and lower middle class. In contrast with the pre-Fascist policy, the OND puts more efforts in perpetuating popular traditions and folklore and in artistic activities, than in spreading classroom education.

Italian education is hardly comparable to

American education. The basic American educational movement had no impact on Italian schools, and Italian educators who are widely known in this country, such as M. Montessori, (*q.v.*), had little if any influence in their own country. In spite of substantial differences in organization and curricula of these two systems, some contacts were possible at the higher education level. The American Academy of Rome awarded fellowships to American art students (See *SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL*); and the Library for American Studies in Rome provided means of authoritative information on American history, literature, and culture.

It is difficult to evaluate how much World War II has influenced the Italian school system; however, the scarce information available seems to indicate increasing difficulties in carrying through the pre-war educational program.

R.C.

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J

JAMES, WILLIAM (1842-1910).

William James was a distinguished philosopher and psychologist and probably the most influential thinker of his day. Having obtained an M.D. degree from Harvard Medical School in 1869, James became an instructor in anatomy and physiology at Harvard College in 1872; later, from 1880 until 1907, he continued his brilliant teaching career there in the fields of psychology and philosophy. As philosopher, James became the recognized leader of the influential American movement of pragmatism (*q.v.*), he also contributed highly original and stimulating writings to the fields of ethics, religion, metaphysics, and theory of knowledge. As psychologist, despite disinclination by temperament to conduct experiments himself, James gave great impetus to the development of scientific psychology in America. Although not a professional educator, his broad interests included a serious concern with the aims and psychology of education, and he pioneered in the application of empirical psychological principles to everyday problems of the classroom.

James's view of the ultimate objective of education is stated in terms of an individualistic rather than a social goal and reflects his biological conception of mind as an instrument of adaptation. "In the last analysis," he writes, "[education] consists in the organizing of resources in the human being, of powers of conduct which shall fit him to his social and physical world." The task of the teacher thus consists "chiefly and essentially in *training the pupil to behavior*", enabling him to make an effective adjustment to his present and future environment.

The psychological principles by which James would guide this training are fully discussed in two works of great significance in the development of modern education—his monumental *Principles of Psychology* (1890) and his later, popularized *Talks to Teachers* (1899). Empirical and biological in approach, the *Principles* was an outstanding

contribution from the functional standpoint to the new science of psychology; its broad scholarship, brilliant style, and penetrating analysis of many psychological phenomena have made it one of the most influential of modern treatises on psychology in English. With less analytical technicality, the *Talks to Teachers*—which were, in their original version, lectures to teacher audiences—attempted a "concrete practical application" of empirical psychology to educational problems, and stimulated widespread interest among educators in psychology as the proper foundation of education. In addition, both works contain many specific theories that have exercised a marked influence on the development of educational thought and practice, among them James's famous views of habit, instinct, emotion, memory, and the motor consequences of ideas.

Although the advance of psychology since James's day has outmoded certain of his educational views—for example his theory of instinct as the basis of education—others have proved to be of enduring significance for the educator. Probably James's most important specific contribution to education was his criticism of the doctrine of formal discipline in the field of memory. His rejection of this theory and his early experiment on the topic led to numerous investigations that have justified his criticism and established the modern view of the transfer of training. Much current psychological thinking also supports several of James's broader educational principles—notably his view of the indispensable rôle of interest in learning, his stress on the need for activity on the part of the learner, and his related emphasis on the desirability of concrete and non-verbalistic methods of teaching. Of probably even greater contemporary significance is James's fundamental principle that a person's reactions and their consequences in a given situation will inevitably condition his future responses to it. This, as well as other teachings of James, is an im-

JANITOR — JAPAN, EDUCATION IN

portant antecedent of the stimulus-response psychology formulated by his student, Thorndike—a point of view that has had widespread influence in the contemporary educational field. B.B.M.

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JANITOR—See CUSTODIAL CARE.

JAPAN, EDUCATION IN. Education in any community or in any country has two fundamental functions: first, maintaining and diffusing the community or national culture; second, modifying the old culture or even creating a new culture. The first function may degenerate to the level of pure propaganda, indifferent to the truth but loyal to pressure. In the exercise of the second function education may break too much from all the good that may have accrued throughout the years and disintegrate into a group of unmarshalled and undirected movements. These weaknesses may appear not only in the distinctly cultural institutions but in all institutions that have an educational influence. Japan, through governmental influence, has consciously exercised both of these functions. And because of the reverence in which the Emperor is held, the National government is effective in its control and direction of education.

In Japan, where the military forces have an unusual leverage on the government, the two functions of education mentioned above are very pronounced and are subject, at times, both to marked strengths and to grave weaknesses. In brief, the army and navy leaders, by virtue of their right of direct access to the Emperor without going through the cabinet and without ministerial assent, are in a strategic position to influence the thoughts and actions of the people. These two groups of leaders can even prevent the formation of a cabinet or force its resignation by withholding or withdrawing their respective ministers.

The family tradition constitutes another factor influencing education in Japan. The

family system comprises the social unit of Japan. It consists of a whole group of people related through birth and marriage. Each family group has a recognized leader who retains his position until he reaches a certain age when he retires in favor of his eldest son.

The Japanese philosophy of life thus lends itself to solidarity and adaptation. The nation, because of the relation of the individual to the state and to the family, functions as a unit.

The Japanese are nationalistic in outlook. They are proud of their growth to a world power. They have a reverence for their state and for their Emperor. They are a thrifty, hard-working people. To them any occupation is honorable. To them education has a vital relationship to their national life.

In ancient times education in Japan was simple; it was based upon the family system. Each family transmitted to its members the family vocation, the family worship, and the ancestral rites. In 1864 the practice of public lecturing began. Feudal lords established schools for their retainers' sons. The aim of education was to cultivate ideal personality and to train government officials.

The masses of the people were taught in the *Tera-Koya*, small cottages attached to the temple, the most important seats of education before the Restoration. At the time of the Restoration there were approximately 16,000 *Tera-Koya* in Japan. Thus far education was primarily for boys.

As time progressed the influence of the United States, of Germany, and of France was felt in the Japanese schools. In 1872, Japan was divided into eight Academic Districts on the order of similar divisions in France. Each district had its university, its elementary and its secondary schools as well as middle school districts. In 1890 compulsory education was legalized; foreign teachers were brought in. On the whole, three foreign countries have contributed to the present educational program in Japan. France may be said to have had the greatest influence on the lower levels of education; the United States upon the graduate schools; while the German universities had more influence on the Japanese college.

National Philosophy and Educational Philosophy. The fundamental basis of the Japanese national life is expressed in the

Japanese word *Kokutai*. This word expresses what the Japanese mean when they think of their national culture. The word means a combination of the fundamental characteristics of the state with the latter's spiritual heritage based upon them. Education, like all other phases of culture in Japan, is inseparably linked with *Kokutai*. This close integration is well illustrated in the *Imperial Rescript on Education*. This *Rescript*, formulated by Emperor Meiji and promulgated October 30, 1890, was to serve as a basis for the fundamental changes that were being made in the educational program of Japan.

The *Rescript* is as follows:

Know ye, Our subjects:

Our Imperial Ancestors have founded Our Empire on a basis broad and everlasting and have deeply and firmly implanted virtue; Our subjects ever united in loyalty and filial piety have from generation to generation illustrated the beauty thereof. This is the glory of the fundamental character of Our Empire, and herein also lies the source of Our education. Ye Our subjects, be filial to your parents, affectionate to your brothers and sisters, as husbands and wives be harmonious, as friends true; bear yourselves in modesty and moderation; extend your benevolence to all; pursue learning and cultivate arts, and thereby develop intellectual faculties and perfect moral powers; furthermore advance public good and promote common interests; always respect the Constitution and observe the laws; should emergency arise, offer yourselves courageously to the State; and thus guard and maintain the prosperity of Our Imperial Throne coeval with heaven and earth. So shall ye not only be Our good and faithful subjects, but render illustrious the best traditions of your forefathers.

The Way here set forth is indeed the teaching bequeathed by Our Imperial Ancestors, to be observed alike by Their Descendants and the subjects, infallible for all ages and true in all places. It is Our wish to lay it to heart in all reverence, in common with you, Our subjects, that we may all thus attain to the same virtue.

The 30th day of the 10th month
of the 23rd year of Meiji.

(Imperial Sign Manual. Imperial Seal).

The *Rescript* differs from the guiding principles of education in other countries. It is at the same time both a guiding principle in education and a code of morals. A copy of this *Rescript* is given to every school in the Empire. It is read in assembly each October 30, on graduation days, and on other important occasions.

Divisions of Education. Elementary education, which embraces approximately three-fourths of the student body of Japanese schools, consists of two divisions or courses

—a six-year course, and a higher elementary course, three years in length. The latter is not compulsory. Moral and religious training as well as science are emphasized in the elementary schools. Special emphasis is given to physical and health training.

Four rather extensive types of schools are found in Japan on the secondary school level. They are the middle school, the girls' high school, the technical school, and the youths' schools. The *Koto Gakko*, the upper division of which is university preparatory, constitutes a fifth division; it enrolls comparatively few students. The youths' schools predominate both in number and enrollment. They are quite flexible and enroll students not ordinarily qualified to do secondary school work.

There are 45 universities in Japan, the function of which is four-fold: imparting essential scientific knowledge that is worth while to the state; providing research in the various branches of the sciences; building individual character; fostering the formation of the national spirit. The universities together with the special colleges and the technical colleges enroll approximately 175,000 students. Considerable attention is given to teacher-training institutions.

General Statistics of Educational Institutions in Japan Proper*

Types of Schools	No.	Students	Teachers
Primary	25,840	11,567,000	261,500
Middle	559	35,200	14,200
Girls' High Schools ..	985	433,000	13,500
Normal Schools	101	30,000	2,200
Technical Schools	1,935	260,000	19,600
Higher Technical Schools	60	27,000	2,400
Higher Special Schools	118	72,000	5,800
Universities	45	72,000	6,600
Youths' Schools	17,043	1,965,000	74,000

*Taken from *Japan-Manchoukus Year Book*, 1940,
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JEAN-JACQUES ROUSSEAU INSTITUT—See SWITZERLAND, EDUCATION IN.

JEANES SUPERVISOR — See NEGRO EDUCATION.

JESUITS, EDUCATIONAL WORK OF. The Society of Jesus, commonly known as the Jesuit Order, was founded by St. Ignatius Loyola. A charter was granted to the Society by Pope Paul III on September 27, 1540. The first intent of the founder had been to carry on missionary work in the Holy Land, a project which was soon made impracticable. Although the needs of the period suggested participation in educational activity, especially since urgent invitations were not wanting, it was with some reluctance that he entered the work with his companions. Education is today one of the chief means by which the Society furthers its ultimate aim—the salvation of souls. Jesuits labor for their own salvation and that of their neighbors by training good Christian citizens in keeping with the motto of the Society, *Omnia Ad Majorem Dei Gloriam* (All for the Greater Glory of God).

The Jesuits experienced immediate success in Europe and by 1700 the Society controlled more than 700 universities, colleges, secondary schools, normal schools, and seminaries. Some institutions cared for as many as two thousand students. Toward the end of the 18th century, just before the Society was suppressed, there were 22,589 members in 39 provinces. There were 24 Houses, 669 colleges, 61 novitiates, 176 seminaries, and 273 missions among the savages. The Jesuit schools were caring for over 200,000 students, drawn from all classes of society, who were educated free of charge. Much of the success of the program has been attributed to the superior training of the teachers and the extremely efficient organization. Von Ranke, a hostile critic, says: "It is found that young people gained more with them in six months than with other teachers in two years. Even Protestants removed their children from dis-

tant gymnasia to confide them to the care of the Jesuits."⁴

The success of the Society aroused enmity in groups which feared the influence of the Jesuits in the Church and in court circles. The devotion of the Society to the interests of the Papacy interfered with political ambitions in high places. Agitation for the suppression of the Jesuits assumed such proportions that Pope Clement XIV was compelled, "for the sake of peace," to issue the Brief of Suppression on July 21, 1773. The schools of the Society were soon closed or turned over to new masters. A few schools continued to exist in countries in which the Brief had not been published, so that by 1776 there were 145 members scattered through twelve establishments. These formed the nucleus for a new system of schools when the Society was restored throughout the world by Pope Pius VII on August 7, 1814. While there are 12,472 Priests and 8,893 Scholastics now serving (1941) in various spiritual ministries throughout the world, the Society has never fully regained in Europe the place it occupied in the educational world at the time of the Suppression.

The Jesuit system of education is based on the *Ratio Studiorum*, the result of fifteen years (1584-1599) of study, experimentation, criticism by classroom teachers and eminent professors of the Order, under the direction of a central committee. Farrell² calls it *The Jesuit Code of Liberal Education* because (1) it formulates a systematic body of educational principles and practices shaped to an educational philosophy, and (2) it singles out the liberal arts as the core of the curriculum for undergraduate training. The classics always constitute an important part of the curriculum in a Jesuit school, though other subjects are not neglected. The same is true of scholastic philosophy. The Society has always tried to compromise between the old learning and the new, but training in the classics followed by courses in scholastic philosophy, continues to be a distinguishing characteristic of Jesuit education. Religion alone holds a higher place. Any program in which these three elements are in balance, in keeping with the principles of the *Ratio*, is pre-eminently the means to promote the formation of cultured Christian men. The spiritual, the rational and the humane meet and work in harmony.

The rules in the *Ratio* governing the duties of administrative officers, professors and students are quite specific. Instructions on methodology are just as detailed. The *Ratio* is no longer binding in the colleges, and teaching methods in the Jesuit high schools in the United States have been adapted because of curricular changes. The practice in Jesuit schools today, then, is to follow the Jesuit method of teaching as much as possible and to adapt the curriculum to conform with local requirements. Nevertheless, the *Ratio* has unquestionably shaped the thinking and practices of Jesuit educators so that there is today a distinct type known as Jesuit education. It has also served to promote the distinctive efficiency, unity and method that have been so largely responsible for the success of the Jesuits as teachers.

The Society is tenaciously devoted to the ideal "that neither pains nor expense should be spared in the formation of the Jesuit master." The candidate passes through two years of novitiate training at the outset, a period devoted almost exclusively to the cultivation of the ascetical life. The following two years are spent in the Juniorate, essentially a school of classical studies. Latin, Greek, English, history, and some elective studies constitute the program. Courses in education parallel the offerings in content subjects. The candidate, or Scholastic as he is known by this time, is also obliged to do some practice teaching. The young Jesuit next follows a carefully correlated system of philosophical training in a School of Philosophy, which is usually an integral part of one of the larger Jesuit universities. The program of the first year includes survey courses in mathematics and science. The second and third years are given to courses in psychology, philosophy, the sciences and education. The bachelor's degree is conferred after the second year of philosophy. After this extensive training, two and sometimes three years are spent in teaching in one of the high schools of the Order. Then follow four years of theological study. At the end of the third year, the Jesuit is ordained a priest. The average age at ordination is 31. The period of training for teaching covers twelve years. An individual who shows unusual aptitude in a subject is quite frequently sent to a university for his final degree; that is, after completing his training in

the Order. McGucken indicates that there is a definite purpose in such an extensive training program. "In giving these long years of preparation to this task, the Society has a triple aim in view; the Jesuit is expected to be an efficient educator of youth, an able priest, and at the same time, a cultivated man of the world."⁴

The *Constitutions*, approved by Pope Julius III in 1550, outline the purpose and organization of the Society and enumerate the means whereby its spiritual ministries are to be performed. The Order is divided into Provinces and Vice-provinces, of which there are forty-five and five, respectively (1941). Each province is governed by a Provincial appointed by the General. Several provinces make up an Assistancy, of which there are eight: English, American, Slavic, Latin American, Italian, German, French, and Spanish. Each Assistancy represents a geographical section and is governed by an Assistant. The General is chosen for life and has complete authority and power in the Society. He presides over the sessions of the General Congregation, the supreme legislative and governing body. The Congregation is composed of the Provincials and two delegates from each province. The Assistants serve as aides of the General in administering the affairs of the Society. Rectors of universities and colleges and other local superiors are appointed by the General but are accountable to the Provincials.

Jesuit Fathers, members of the English Province, cared for the spiritual needs of the Catholic colonists of Maryland during the 17th and 18th centuries. Jesuits from Belgium founded the Missouri Province in 1823. The New Orleans Province was established by the French Jesuits. Italian members of the Society extended the work of the Society as far as the Pacific Coast. Germans were responsible for a foundation in Buffalo in 1870. These Jesuit pioneers from many lands soon acquired the American spirit and rendered invaluable service through their religious and educational activities. Europe no longer supplies personnel for the Society in America, since native vocations are now quite sufficient. "The roots of Jesuit education reach down deep into the very beginnings of American history. It is truly an indigenous and native growth as much as any education in the

JEWISH EDUCATION

United States can claim to be, fostered under the best tradition which the Old World could give to the New."

American Jesuits date their educational activity from the founding of Georgetown University in 1789, even though it did not receive recognition as a Jesuit college until 1806, at the time the Society was reestablished in the United States through the influence of Bishop John Carroll of Baltimore. A corporation of ex-Jesuits had established and staffed the school during the interim, 1789-1806. After the Restoration, other foundations followed rapidly; St. Louis University, 1818; Spring Hill College (Alabama), 1830; Xavier University (Cincinnati), 1831; Fordham University, 1841; Holy Cross College, 1843. Five Jesuit institutions of higher learning have passed the century mark (1943). Others have over ninety years of service to their credit. The twenty-five Jesuit colleges and universities comprise one-third of all the Catholic institutions of higher education established originally for the education of men. They also care for approximately forty per cent of the enrollment. Eighteen of the twenty largest cities in America have Jesuit college or university facilities. The same is true for nine of the ten most populous states. The territorial spread of the Jesuit effort in higher education is impressive, yet the role the Society plays in providing professional education under Catholic auspices is still more significant. Eleven of the fourteen Catholic law schools approved by the American Bar Association are Jesuit. The five class A Catholic medical schools are controlled by the Society, and two of the three schools of pharmacy. The same predominance is true in commerce, engineering, dentistry, social work, education, and graduate studies. Members of the Society have been especially prominent in America in research in astronomy and geophysics. An astronomical observatory is maintained at Georgetown, and seismological stations are operated at Georgetown, St. Louis, Fordham, John Carroll (Cleveland), and Weston (Massachusetts). Observations and recordings are exchanged with institutions and governmental agencies throughout the world.

McGucken says that by 1910 the Jesuit high school "emerged as a distinct entity, separate from the college in administration, and in-

structional staff for the most part, differing very little in curriculum from the classical course of the public high school, and yet retaining the characteristic Jesuit spirit in its objective and in its method."⁴ A network of Jesuit high schools covers the United States. Some are boarding institutions and others care for day students only; some bear the names of great universities and others honor Saints of the Society. Most of the 37 schools are located in or near populous centers and their student bodies constitute typical cross-sections of the general population. Almost eighteen thousand boys are registered in Jesuit schools of secondary grade (1942). Twelve schools have an enrollment of from 400 to 600, and ten from 700 to 1,000.

There are 2,710 Fathers and 2,352 Scholastics serving in the seven Provinces (California, Chicago, Maryland-New York, Missouri, New Orleans, New England, Oregon) which comprise the American Assistancy (1941). The American Jesuits are also responsible for thirteen schools, including ten secondary schools, two colleges, and one university, in British Honduras, China, India, Iraq, Jamaica, and the Philippines. The American Assistancy maintains almost twice as many missionaries as any other American Catholic organization. (See ROMAN CATHOLIC EDUCATION.) F.M.C.

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JEWISH EDUCATION. *Jewish Education* is a program of supplementary education offered in Jewish schools and religious institutions.

The aims of such instruction fall, in the main, under three headings: (1) attaching the child devotedly to his people and to the faith of his fathers; (2) familiarizing the student with the history and culture of the Jews and with the Hebrew language and literature; and

(3) inducting the child into functioning participation in Jewish religious, communal, intellectual, and social institutions and movements.

The instruction is usually offered after school hours on week-days, or on mornings during the week-end, or both. The time devoted to it varies from a minimum of one or two hours a week to a maximum of twelve to fifteen. A small number of parochial-type schools offers a combined curriculum of both secular and Jewish subjects.

The content of instruction varies greatly among the Orthodox, Conservative, and Reform types of schools. Among Orthodox Jews, the ritual of worship is entirely in Hebrew, as is the reading of the weekly Bible portion. This leads the schools in this group to emphasize fluency in mechanical reading of Hebrew and translation of prayers and the Bible. In the modern schools, Hebrew is also taught as a living language and subjects like Jewish history, ceremonials, religion, and modern Jewish life receive some emphasis.

The Reform group worships in the vernacular; this has greatly reduced the emphasis on Hebrew in the Sunday Schools. Instead, Bible, Biblical History, Religion, and Ethics received major emphasis until recently, when Jewish history down to modern times, current events, modern Jewish problems, demography, and similar subjects were introduced.

The conservative group stands somewhere between the Reform and Orthodox groups. In their ritual, the vernacular plays a larger rôle though Hebrew still predominates, but less so than in the Orthodox schools. The various cultural subjects taught in English receive greater emphasis than in the Orthodox schools and many of the Reform textbooks have widespread use.

In some schools advanced courses in Hebraic subjects and in Rabbinic literature may be taken. Small groups of schools here and there pursue a particular bias, e.g. the substitution of Yiddish for Hebrew as the language objective, the minimization of the theological aspects of religion, or indoctrination in the goal of pioneering in Palestine, or in some political or economic school of thought.

In addition to academic instruction many modern schools within all groups offer opportunities for practical training in worship, celebration of holidays and festivals, participa-

tion in Jewish organizational work and in charitable and social service projects, and creative expression in dramatics, literature, art, and music. Many schools have an extra-curricular program for student self-government and sociability; in fact, some institutions offer this type of program exclusively, to maintain contact with the many thousands of youth who never had any Jewish education or who left school early.

Basic to the entire program of Jewish education is a character training orientation. However, it is not introduced as a subject of formal instruction, except in rare instances, but is rather made the resultant of the religious disciplines, the parental relationships and home observances, and the general religious school activities and atmosphere.

Pedagogic methods used in Jewish schools vary from the most progressive to the most archaic. The best schools in the field compare favorably with the finest of the private progressive secular schools. At the same time a small percentage of children are taught in unattractive surroundings by hopelessly incompetent teachers who do violence to every known pedagogic principle. By and large, however, the Jewish schools are comparable in their methodology with the public schools of their community.

Physical facilities and equipment, while they vary greatly, have benefited from the wave of building activity during the prosperous '20s. This is particularly true of the schools connected with congregations, although the communal schools have also benefited. The result is that a surprisingly large number of schools in tiny communities as well as in large cities are now housed in splendid, modern school buildings. The actual value of all Jewish school buildings and equipment in the U. S. is probably close to 60 million dollars, of which approximately 35 millions represents the school property of the congregations and the remaining 20 to 25, communal school property.

The annual budget of Jewish education is probably between 7 and 8 million dollars, which, expended on the education of an approximate enrollment of 250,000 children gives a per capita expenditure of \$30 to \$35 per annum. The week day schools spend about 5 millions of this sum on the education of about 150,000 children per annum. The

JEWISH EDUCATION

Reform Sunday Schools spend about \$1,250,000 on the education of about 40,000 children per annum. The remainder is spent upon another 50,000 children in parochial schools, in supplemental Sunday Schools, in folk-schools, and under private instruction or other types of schooling involving small numbers of children.

In the main the week-day schools operate by charging tuition fees. However, since about one-third of their enrollees must be admitted either free or on part-scholarships, it becomes clear why tuition fees provide only about two-thirds of their revenue, the remaining one-third coming from philanthropic and communal sources. The Sunday schools generally operate free for children of members, children of non-members being charged a nominal fee when they are not admitted entirely free of charge. The cost of Reform religious education is paid out of the congregational budgets. In the Conservative schools the Sunday program is often provided free, as in the Reform schools, while the week-day program must be paid for, as in the Orthodox schools.

Teacher-training schools in the larger cities and within all the denominational groups, strive constantly to improve the caliber of the teachers, to increase their academic background, and to heighten their professional competence. The licensing of professional Jewish teachers is spreading in the large cities.

Even the Sunday School teacher, whose work is necessarily part-time and avocational, is more and more a product of a Teachers Institute or College of Jewish Studies. The untrained volunteer is found less and less frequently. In the smaller cities where systematic teacher-training schools cannot be maintained, the Rabbis often conduct training classes for their own teachers and hold regular teachers' meetings, conferences, and demonstrations.

In general, Jewish teachers are young (30 years, average), well-educated (3 years college, average), and experienced (5 years teaching, average). There are about 2500 full-time professional teachers engaged in Jewish educational work in the U. S. who earn an average salary of about \$1500-\$1750 per annum. Principals of schools may receive about \$3000. Some directors of Jewish edu-

cation in large cities receive approximately \$5000.

There are about 4000 to 5000 Jewish Sunday school teachers in the U. S. who receive an average monthly salary of about \$12 to \$15 and a maximum of about \$30. Supervisors in the larger schools, of whom there are over 100, may earn from \$40 to \$100 per month for this part-time work. There are very few full-time directors of Sunday Schools.

Attendance statistics for Jewish education are difficult to secure. It is estimated that among the 4,750,000 Jews in the United States, there are approximately 850,000 children of school age. The actual enrollment in Jewish schools at any one time is estimated (from surveys made in various large cities) to be about 250,000 children. What percentage of the 850,000 receive some kind of Jewish education for some length of time is not known exactly, but it is estimated to be at least 50%, and possibly as high as 75%.

The Orthodox type of school, which offers many hours of instruction in Hebrew, fails to hold its pupils for any appreciable length of time. Recent surveys have shown that more than 50% of children enrolled in these schools drop out before they have completed even one year of work. Only 5% reach the fifth grade. In New York City with about 325,000 Jewish children of school age, only about 3,000 reach the high school departments of these schools. It seems clear that only a tiny fraction of the children in these Hebrew-centered schools ever attain even fair proficiency in Hebrew language and literature. This fact is doubly significant in view of the large constituency which these schools serve, namely, about 3,500,000 of the 4,750,000 Jews in the U. S. Incidentally, in these schools boys predominate in the proportion of about 3 to 1 over girls.

The Reform type of school, offering two or three hours of instruction mainly on Sunday morning, serves a small percentage of the Jews in the U. S.: about 400,000. The proportion of children of school age is much smaller than in the general Jewish population, totalling about 42,000, of whom about 35,000, or more than 80%, are enrolled in religious school at any one time. In addition to this high percentage of attendance, the average student remains in religious school approxi-

mately 6 years, and about two-thirds of all those who are confirmed go on to take post-confirmation work. In contrast with the other schools, practically 100% of children who enroll in grade 1 are still present in grade 5; 57% of them reach grade 9 and 27% reach grade 12. The proportion of boys and girls is about equal.

Adequate information about attendance in the remaining types of Jewish schools is not available.

Youth and Adult Education have not received very great emphasis or support. Only a small percentage of youth continue their Jewish studies, though many maintain contact with Jewish institutions through youth groups, club work, and recreational activities. The youth on the college campus was largely neglected until recent years when the flourishing Hillel movement began to place competent Jewish educators and leaders on so many of the larger campuses. Adult education is carried on through the medium of study circles and adult institutes, but the number of enrollees is extremely small in proportion to the total adult population. The most important medium of adult instruction remains the sermon during the religious service. Youth and adult education and pre-school religious education are the most likely areas to be developed as the field of Jewish education expands.

Professional and Higher Jewish Education is now the privilege of a very select few, but these few have the advantage of attending institutions with scholars of world renown as teachers. There are five training schools for Rabbis, two Reform, two Orthodox, and one Conservative; a Jewish Liberal Arts college; a graduate school for the training of social service workers; a graduate school for purely academic scholarly research; and a number of high-grade teachers' training schools. The hundreds of graduates of these institutions who hold positions of responsibility in educational work, social work, and in the ministry are the backbone of the structure of Jewish education in the English-speaking world.

A.N.F.

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See also articles in the periodical *Jewish Education*.

JOB ANALYSIS. The job-analysis approach to educational problems has been employed effectively in many situations—particularly in vocational education (*q.v.*). The problem is three-fold: first, an analysis of the duties involved in a particular job; second, the determination of the knowledge, habits, and skills required for success in the pursuit of this job; and third, the development of appropriate instructional materials.

Charters and Waples have made wide use of job analysis in curriculum construction. Their approach to the determination of the objectives of teacher education was a comprehensive analysis of what teachers are called upon to do and the identification of traits that actually characterize successful teachers. A master list of some 1,000 types of activities was derived from various sources. These were classified in appropriate categories and ranked, and techniques were developed for using the evaluated activities.

In the field of vocational education, job analysis is a standard basis for curriculum construction and definite techniques have been developed for its utilization.

Five means are used in making a job analysis. These are: introspection (a person is asked to list the duties in connection with a job); interviewing (job holders list their duties and a master list is prepared); working on the job (investigator secures a job, carries on operation, and notes duties); questionnaire (inquiry blank sent to workers to be filled out); summary of literature (analysis made by reading about the job).

In using the job-analysis technique there is not only the problem of securing the items involved, but also the determining of the difficulty of each item.

The job-analysis approach to curriculum

JOURNALISM EDUCATION

has not been used extensively. The principal reason for this is the fact that by itself it does not constitute a method of curriculum development, since it may fail to give leads to the controlling purposes in a curriculum enterprise. Therefore it is necessary that the information revealed by job analyses be supplemented by materials bearing on social purposes and ideals. It is because of the failure to use such additional measures in connection with curriculum construction that many of the programs in the field of vocational education have come under rather serious criticism. As a technique in determining initial requirements, however, it has great value for the curriculum maker. (See CURRICULUM.)

W.H.B.

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JOURNALISM EDUCATION. Education for journalism, as we know it today, emerged from a welter of journalistic and educational controversy over the practicability of collegiate instruction for newspaper work. This controversy still strongly influences the content of journalism curricula. In 1903, Joseph Pulitzer offered to endow with \$2,000,000 a school of journalism at Columbia University. The proposal precipitated a public argument not only nation-wide but international. Men who published comments included Presidents C. W. Eliot of Harvard and James B. Angell of Michigan; Carl Schurz and Grover Cleveland; Samuel Bowles, Henry W. Watterson and Lincoln Steffens; Viscount James Bryce and Lord Alfred Harmsworth. Their prominence and the prominence of Mr. Pulitzer attracted attention to the issue and to the growing stature of journalism. Ultimately Mr. Pulitzer decided to bequeath the money instead of giving it immediately. He died in 1911, and the Journalism School at Columbia University opened in 1912. Meanwhile, a Missouri editor, Walter Williams, formulated a definite plan for a school of journalism using ideas expressed in the controversy by editors, educators, and

statesmen. So in 1908, four years before Mr. Pulitzer's endowed school started in New York, Dean Walter Williams began at the University of Missouri the first complete division of any university in the world to devote itself to education for journalism.

Neither the idea nor the controversy was new. In 1869, President Robert E. Lee of Washington College in Virginia appointed a Virginia editor to give practical instruction to fifty scholarship-holders in the college who "intended to make journalism their business in life." This was the first attempt to combine instruction in journalism with liberal arts courses on a collegiate level as education for newspaper work. The announcement stirred public discussion in the New York, Richmond, and Louisville press. From 1879 to 1885, a course in Political Economy at the University of Missouri included "the principles of journalism as illustrative material." Cornell began a journalism course in 1888; the University of Pennsylvania in 1893; and the University of Kansas, 1903. But no independent division for journalism education appeared between 1869 and 1908. The first journalism course offered in a European college was begun at the University of London in 1919.

Today (1943) 542 institutions offer instruction in journalism: universities and colleges, 418; teachers' colleges, 103; Negro colleges, 21. Of these, 32 institutions have accredited professional schools and departments of journalism which meet the "Class A" requirements for membership in the American Association of Schools and Departments of Journalism; 71 have schools and departments offering degrees or majors in journalism which do not meet AASDJ requirements; 55 offer substantial programs in journalism, usually as divisions of English departments having combined English and journalism majors, or journalism minors; 384 have limited journalism programs, usually carried as English programs and in most cases counted on the English major but not constituting an independent minor.

The controversy begun in 1869 and resuscitated in 1903 focused editorial and educational attention upon two opinions: that a broad discipline in history, social science, and literature was most important for journalism, and that other skills and talents in-

dispensable in newspaper work could not be learned "outside a newspaper office." Many journalists, educators, and students were skeptical. So, from the beginning to the present, education for journalism has emphasized the two dual objectives: that of stressing both liberal arts and actual newspaper office techniques in the journalism curriculum, and that of emphasizing scholarship in background courses while satisfying editors by sending them young men habituated to actual newspaper office traditions and techniques. A prime objective of journalism teaching is to show students the importance of background courses for journalism and to show them how to use a background knowledge in newspaper work.

The first statement of "requirements for a journalism degree" (in 1908) stipulated that 75 per cent of a student's work must be in nonprofessional "background courses"; that professional newspaper men who were also university graduates constitute the professional course faculty, and that the teaching of journalism courses simulate actual newspaper procedure with the publishing of an actual newspaper as the laboratory product. With minor variation, this principle has been the criterion. An analysis of degree requirements in the 32 professional schools of journalism with AASDJ membership shows that an average of 76.7 per cent of the program is devoted to background courses; only 23.3 per cent to professional courses.

The first two journalism schools (Missouri and Columbia) each taught in at least one professional course the social function and the ethical responsibility of the press. Since the early twenties, a curricular trend, accelerated in the early thirties, has added more and more professional courses which attempt to place the newspaper in its social framework. The movement has effected a social enrichment of journalism curricula. Instructors explore the field of communications, foreign newspapers, public opinion and propaganda, newspaper problems, the press as a factor in international relations, social problems in journalism, and similar study aimed at providing an education *in* journalism as well as *for* journalism. All thirty-two of the AASDJ schools have adopted curricula devoted not only to the practices of journalism but also to a social evaluation of those prac-

tices and to a scholarly understanding of public affairs in ways which can bring that understanding to a broad public through journalism. A consensus expressed by Association members for twenty years is that the study of journalism should not follow the practical blindly but should become an intellectually free pursuit of knowledge of the press, of what it has been, of what it is, and what it ought to be. Important journalism teachers unanimously agree that the aim of journalism education is two-fold: to combine scholarship with journalistic techniques so that public affairs can be made interesting and comprehensible to large numbers of people, many of whom have limited vocabularies and slight basic information, and to improve existing techniques and to study the newspaper as a social institution.

The accredited professional schools of journalism are recognized by the major newspaper organizations of the United States through the National Council on Professional Education for Journalism, representing the American Society of Newspaper Editors, the American Newspaper Publishers Association, the National Editorial Association, the Southern Newspaper Publishers Association, and the Inland Daily Press Association. The National Council occupies a relationship to schools of journalism similar to that which the Engineers' Professional Council occupies to the engineering schools or that the American Bar Association or the American Medical Association occupy toward their professional schools.

These thirty-two accredited schools report 258 faculty members. Of these, 59 per cent have advanced degrees, 63 per cent are of professorial rank. These 258 staff members show an average of 10.9 years of practical journalistic experience and an average of 11.3 years of teaching experience. The average journalism school's staff consists of 7.9 persons. All 32 schools have completely equipped news rooms and news editing laboratories; 11 have completely equipped newspaper plants; 18 have arrangements with cooperative newspapers for practical experience.

AASDJ schools are: Boston University, University of Colorado, Columbia University, University of Georgia, University of Illinois, University of Indiana, University of Iowa,

Iowa State College, University of Kansas, Kansas State College, University of Kentucky, University of Louisiana, Marquette University, University of Michigan, University of Minnesota, University of Missouri, University of Montana, University of Nebraska, New York University, Northwestern University, Ohio State University, University of Oklahoma, University of Oregon, Pennsylvania State College, Rutgers University, Stanford University, Syracuse University, University of Texas, University of Washington, Washington and Lee University, University of Wisconsin, University of Southern California.

Most journalism schools require two years of liberal arts work for admission. Only the Graduate School of Journalism of Columbia University is a strictly graduate division. Its students are selected on the basis of scholarship from applicants who hold at least a bachelor's degree. Several other journalism schools offer a master's degree, as well as a bachelor's degree, for students who continue into graduate study. A Ph.D. degree in journalism, offered for a few years at the University of Missouri, was discontinued in 1941.

R.E.

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JOURNEY, SCHOOL — See **TRIP, SCHOOL**.

JUNIOR COLLEGE. An educational institution which typically offers two years of education of college grade beyond the high

school level. A small number of junior colleges include also the last two high school years, making a four-year junior college. Two chief types are recognized, those publicly controlled and those privately controlled. The latter are more numerous but the former have the greater number of students.

Origin and historic background. Both types of junior colleges are products for the most part of the twentieth century. The first publicly controlled junior college now in existence was established at Joliet, Illinois, in connection with the local high school. The most significant development of publicly controlled junior colleges, however, has occurred in California following favorable constructive legislation in 1907 and frequent supplementary legislation since that time. The first California junior college was organized at Fresno in 1910. In 1942 there were 47 public junior colleges in the state, with an enrollment of regular and special students in excess of 140,000. Publicly controlled junior colleges are found in three-quarters of the states. Legislation expressly authorizing their establishment is found in more than half the states. In some states, of which California is outstanding, there is no charge for tuition; but in many, substantial fees are charged the students. California, Washington, Texas, Mississippi, and Utah are states which have made provision for substantial state support. Some publicly controlled junior colleges have grown up as extensions of local high schools. Others, usually stronger ones, have been established as separate institutions, controlled by the state, or by county or special junior college district boards.

Privately controlled junior colleges have developed in a variety of ways and it is not possible to set a definite date when junior college work, as now recognized, began in them. A few can trace their beginnings back far into the nineteenth century. Lasell Junior College in Massachusetts (then Lasell Female Seminary) was offering systematic work of college level as early as 1852. Some privately controlled junior colleges are the outgrowth of old established seminaries and academies; some have resulted from the elimination of the upper two years of small four-year liberal arts colleges, particularly those founded under denominational influence;

others have been organized *de novo* as separate institutions.

The growth of the two principal types of junior colleges during the past 25 years is shown in the following tabulations:

Year	Publicly Controlled		Privately Controlled	
	Junior Colleges	Students	Junior Colleges	Students
1917	39	1,600	93	2,400
1927	136	20,100	189	15,500
1932	181	61,000	288	36,700
1937	229	90,400	299	38,700
1942	279	197,400	348	70,000
1943	280	238,800	344	75,500

Aims. The junior college aims to meet a variety of higher educational needs of the community in which it is located. Economy is one of the community needs which the publicly controlled institution meets; the student can attend a local college and continue to live at home. Other needs include preparation for advanced work in the case of students who transfer to a senior college or university; general education for those planning to terminate their formal education at the junior college level; specialized preparation for particular occupations, especially of the semiprofessional type; and appropriate courses, both cultural and vocational, for adults in the community. Recent studies have shown that three-quarters of the students who enter junior colleges do not continue their formal education in any other educational institution. For this reason more and more stress is being devoted to so-called terminal education, whereas in the earlier years of the junior college movement chief stress was placed in most institutions on the transfer function.

Curricula. For the student planning to continue his study for the baccalaureate or higher degrees the junior college usually offers courses which tend to parallel closely the courses in arts and sciences given in neighboring universities. To the student who plans to complete his or her formal education at the sophomore level the junior college offers two years of general education, frequently including a number of courses of the survey type, designed especially to prepare for good citizenship and for broad social understanding through curricula that emphasize breadth, unity, and comprehension.

The junior college offers a unique opportunity for training in the group of semipro-

fessional fields. There is a considerable group of occupations between the level of the trades and the level of the professions, commonly designated as semiprofessions, for which two years of college education are considered necessary and sufficient. In engineering, for example, a careful analysis of actual practice has shown the existence of at least three positions on the semiprofessional level for each one on the graduate level. Among the semiprofessional curricula offered in junior colleges are accounting, agriculture, aviation, banking clerkship, business administration, commercial art, dental assistantship, engineering technology, finance, forestry, home administration, hotel management, medical secretaryship, merchandising, nursing, police work, recreational leadership, and secretarial work. The larger California junior colleges, like Los Angeles, Pasadena, Modesto, San Jose, and San Francisco, offer 20 to 30 such semiprofessional curricula.

Successful completion of any junior college curriculum is increasingly being marked by the distinctive junior college degree or title of Associate—usually the Associate in Arts; less frequently the Associate in Science, Education, Home Economics, Engineering, Secretarial Science, or Music. More than 120,000 Associate's degrees or titles have been conferred by 250 junior colleges in the past 25 years.

Current statistics. The *Junior College Directory 1943* lists 624 junior colleges in 45 states, with 14,000 faculty members and enrollments totaling 314,000 regular and special students. About 7 per cent are of the four-year type mentioned above, the two-year institution being the prevailing type. With the exception of three institutions for men, all of the publicly controlled junior colleges are coeducational. Of the privately controlled group, 39 are for men, 111 for women, and 195 coeducational. Three-fifths of the privately controlled institutions are operated under denominational auspices, the Catholics leading with 48; followed by Baptists, 39; Methodists, 38; Presbyterians, 20; Lutherans, 16; and 15 other denominational groups with one to five each, 33. Twenty-six of the institutions are Negro junior colleges. All except three of these are privately controlled. There is one junior college for Indian students.

About one-fourth of the junior colleges are

JUNIOR HIGH SCHOOL

small institutions with enrollments of less than 100 students. On the other hand, 59 report enrollments of more than 1,000 students. The largest enrollment of regular students is found at Los Angeles City College, with 8,992. The largest total enrollment is 25,152 at Sacramento Junior College, California, but over 22,000 of these are special students who carry an unusually extensive program of adult education. Average enrollments in publicly controlled junior colleges have increased since 1930 from 240 to 872, in privately controlled institutions from 115 to 223.

Of the entire group of 624 institutions, 90 per cent are approved by some recognized accrediting agency—national, regional, or state.

Further information. The American Association of Junior Colleges, organized in 1920, maintains a central office and staff at Washington, D.C., which is prepared to give additional information on all phases of the junior college movement. It publishes the monthly *Junior College Journal*; the annual *Junior College Directory*; and numerous books, monographs, and pamphlets, many of which deal especially with Junior college terminal education. A complete annotated bibliography of 1,600 titles published prior to 1930 was published by the United States Office of Education as *Bulletin No. 2, 1930* (167 pages). Supplementary to this early bibliography, the monthly numbers of the *Junior College Journal* since 1930 have included more than 3,100 annotated references to all significant publications aside from the several hundred articles appearing in the *Journal* itself. An extensive recent reference work containing detailed information on 494 accredited junior colleges and much supplementary information is *American Junior Colleges*, American Council on Education, Washington, D.C., 1940, 585 pages. *The Literature of Junior College Terminal Education*, published in 1940 by the American Association of Junior Colleges, contains more than 1,400 annotated titles in this important field.

W.C.E.

JUNIOR HIGH SCHOOL. Dean Harold Benjamin aptly summarizes the growth and development of the junior high school in these words: "Although the junior high school idea is somewhat old and the institu-

tion itself is relatively young, the latter has aged more rapidly than the former".

During the latter part of the 19th century prominent educators suggested that secondary education begin earlier than the ninth grade. The European tendency of differentiating between elementary and secondary education at about age 12 was originally cited as a reason. The large school mortality in this country at the end of the eighth grade was later regarded as a strong argument.

In 1888 President Charles W. Eliot of Harvard University questioned the effectiveness of an eight-year elementary and four-year high school. In 1892 the Committee of Ten (*q.v.*) recommended that the secondary school period begin two years earlier, leaving six rather than eight years for the elementary school. In 1899 and again in 1907, 1908, 1909, and 1913, similar reports emanated from national committees interested in secondary education.

Most of those active in the promotion of this idea represented institutions of higher learning. Their interest naturally centered in a more thorough knowledge of the academic subjects. It is safe, therefore, to generalize the motives which dominated the junior high school idea in its early stages by saying that it was an interest in the attainment of a higher degree of scholarship rather than a desire either to provide more effective growth for the young adolescent or promote a better society in which to live. Those moulding our educational destiny were still apt to measure school growth in this country by the European pattern.

A second motive, however, was later introduced. During the first and second decades of this century a number of studies of pupil elimination from school were made. These pointed to a large mortality during grades 7, 8, and 9. This fact suggested that these grades did not offer enough of interest to the early adolescent to challenge his ability. Need for a different kind of school was the natural conclusion.

The junior high school idea was therefore evolving through a whole generation of time before the institution was established. As an institution it started almost simultaneously in different sections of the country: in 1910 at Berkeley, California, and the same year in Columbus, Ohio; in 1911 in Los Angeles, California as well as in Easton, Massachu-

setts; and then in succeeding years at St. Louis, Mo., Rochester, N. Y., and Philadelphia, Pa. With this beginning the junior high school movement spread rapidly.

By 1940, a generation after its beginning, the movement had reached almost every community in the country. Approximately 2000 schools enrolling more than 1.6 million pupils are reported in the survey of the U.S. Office of Education in that year.

The 6—3—3 organization (six years of elementary school, three years of junior high school, three years of senior high school) is by far the most common. A great variety of other organizations, however, also exist: 6—6, 6—4—2, 6—2—4, 7—2—3 and 5—3—4. This indicates that the junior high school usually begins in the seventh grade, although in some communities the eighth and in a few cases the sixth grade is a beginning point. (See EDUCATIONAL LADDER.)

The aim of the junior high school is variously stated by different writers. The aims can be summarized under three purposes:

1. To satisfy pupil interest and declared needs through larger pupil activity.
2. To aid pupils in exploring areas of contemporary living to make possible a wise selection among future choices.
3. To develop qualities of good citizenship by encouraging pupils to play a larger part in the life of the school community.

At the conclusion of thirty years of rapid rise in number of buildings, money invested, and pupils attending, educators are beginning to question the extent to which the junior high school has succeeded in carrying out these aims. Caught between an elementary school which emphasized drill in the three R's when the junior high school came into existence and a senior high school which concerned itself primarily with preparation for college, it could not or would not be its own doctor. Algebra and foreign languages were forced down from above; grammar as an aid to English expression, formal geography, and often elementary school methods persisted from below.

The world outside also changed enormously. Neither World War I nor the depression of the thirties existed when the junior high school purposes and curriculum became crystallized. Jobs for younger 'teen age boys and girls were plentiful. Vocational explora-

tion at age 12, 13, and 14 seemed fitting. This is no longer true.

The commercial courses and industrial or shop courses because of their exploratory or prevocational emphasis now seem, to many educators, to be misplaced. The large emphasis on vocational guidance implied in its aims is now less valid.

The progressive elementary school, developed in the last few decades, suggests a very different approach to learning from the emphasis either on drill in the 3 R's or on an organized body of facts contained in geography, history, and the like; at the other end, such experiments as the Eight Year Study of the Progressive Education Association (*q.v.*) and various changes in emphasis taking place in college relieve the pressure to prepare boys and girls in the subjects which they may be called upon to study in senior high school or college.

The junior high school is, however, largely unaffected by these later changes in the schools which flank it. It has developed courses in general science, general mathematics, and general language, supposedly adapted to the level of the early adolescent. It has also provided an extensive shop and household arts program. But these are largely revised subject matter courses. They did not as a rule grow out of a study of the needs of early 'teen age boys and girls as do some of our recent college revisions nor were they gauged to the expressive, creative, and manipulative nature of this age level as is true in the modern elementary school.

The junior high school is also much concerned, at least in theory, with vocational guidance, in spite of the fact that increasingly educators are encouraging the extension of the program of general education through the ninth and tenth grades, thus placing the necessity for vocational guidance beyond the scope of the junior high school.

This school came into existence at a time when the world was passing through the initial stages of a revolution which is affecting all of the existing institutions. It grew rapidly in its physical proportions. It has failed to grow much, however, in its internal structure. It is this lag which gives pertinence to the quotation at the beginning of this discussion, namely, that the junior high

JUNIOR RED CROSS — JUVENILE COURTS

school idea has aged less rapidly than the junior high school as an institution.

There is evidence at present that basic internal changes are likely to appear before long. Already a few schools in different parts of the country are experimenting with various kinds of integrated, unified, and other experience-centered curriculums as opposed to the subject-centered curriculum. If these changes develop as rapidly as seems possible in the light of a body of experimental evidence now at hand dealing with the young adolescent, the junior high school of tomorrow will be very different in curriculum and perhaps in organization from the school of today. (See CURRICULUM, SECONDARY EDUCATION.) J.B.

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JUNIOR RED CROSS—See AMERICAN RED CROSS, EDUCATIONAL WORK OF.

JUVENILE AND DOMESTIC RELATIONS COURTS. Underlying juvenile court legislation is the broad principle that the child who comes before the state is to be regarded as a ward of the state and that he is to be saved to the state rather than to be prosecuted by the state. Emphasis is placed on the discovery of those basic needs of the child which are the real causes of his appearance in court rather than the specific act or condition immediately responsible for court action.

According to standards established by U.S. Children's Bureau, juvenile courts should have broad jurisdiction embracing all classes of cases in which a child whose age is eighteen years or under is in need of the protection of the state. The tendency today is to define standards in terms of services and personnel rather than of court organization, since the procedures of these agencies are deemed more essential than their structural form. To assure

effective operation of juvenile courts, the following requirements are regarded as necessary: (1) special and qualified judges and referees with sympathetic understanding of children and family life; (2) probation officers appointed on a merit basis and qualified by education, special training and personality; (3) competent clerical aides; (4) facilities for physical and psychiatric study of individuals; and (5) adequate systems of social and financial records.

In the practices of the best juvenile courts, the hearings are always private and without jury; and the procedure is informal. The detention of the child is kept at a minimum, and always apart from adult offenders. The purpose of the court is to adjust the difficult or neglected child to family and community life by a process of individualized treatment carried on by the judges and probation officers with the aid of social agencies and civic forces in the community. Dependent, neglected, and delinquent children come under the jurisdiction of juvenile courts.

While all but two of the states in the U.S.A. have made legislative provisions for juvenile courts, in practice great variation is found in jurisdiction, organization, and administration. Generally, however, the standards are being raised and the services extended. In June 1938, Congress enacted the Federal Juvenile Delinquency Act which embodies many of the recommendations made by the U.S. Children's Bureau. This bill tends to equalize the treatment of one class of juvenile state wards.

Early in the juvenile court movement, it became apparent that in many situations the court could not deal effectively without exercising jurisdiction over parents and other adults. In 1910, the first Domestic Relations Court was established. This court is a child and family court dealing with problems of both children and families. This combination of all family problems in one court is seen as a natural development in line with modern social work thought. Not all of the states have yet authorized domestic relations courts. (See JUVENILE DELINQUENTS.) M.S.Q.

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JUVENILE DELINQUENTS. Children eighteen years old and under whose anti-social acts have brought them in conflict with society to such an extent that they have been adjudged delinquent by some Juvenile Court are called juvenile delinquents. Many studies of juvenile delinquents tend to show that they are the product of environmental influences upon individuals with certain characteristics. Both environmental and personal factors work together to produce delinquent individuals.

Observations and tests show that delinquents differ from normal children mainly in their emotional reaction. They are often emotionally unstable and emotionally immature. Their reactions to discipline and strain are like those of small children, their interests are unusually childish, and they strongly crave excitement and change. These characteristics are themselves affected by the children's early environment.

All people have certain fundamental needs or desires which must receive some degree of satisfaction if their personalities are to become socially well-adjusted. Some studies show that delinquents tend to have especially strong desires. These needs or desires are for affection, status, success, new experiences, increased self direction, and feelings of worthy selfhood. If the home, the school and the community do not offer children opportunities for satisfying these fundamental wishes constructively, then the frustrations and deprivations result in keen dissatisfaction. Some activity must offset this inner conflict and delinquency offers one of the possibilities.

This unhappy, thwarted condition of an already emotionally unstable child may need only the opportunities afforded by a poor environment to lead him to find outlet in delinquent behavior. Acceptance by a gang as its most fearless and ingenious leader may compensate to some extent for his rejection at home, his lack of status at school and in the community. The low moral standard and physical condition of the home, the rigid curricula and discipline at school, and in-

adequate opportunities for worthwhile activities in the community are outstanding factors found to contribute to juvenile delinquency.

Any improvements which relieve these conditions serve to decrease delinquency. Detecting the pre-delinquent early and training him in acceptable forms of emotional expression is a far more hopeful social program than curing the delinquent whose anti-social attitudes, interests, and ambitions have already become his mode of life. (See JUVENILE AND DOMESTIC RELATIONS COURTS.)

The most promising development in the treatment of juvenile delinquents has been the increased use of the case study (*q.v.*) approach with its emphasis on the need for understanding the individual child and the psychological, physical, sociological, and other factors which have contributed to his delinquency. This interest in the causes of juvenile delinquency has encouraged many-sided attempts at correcting the conditions out of which delinquency arises. The desire to prevent the development of juvenile delinquency has often helped secure public support for such different reforms as the adjustment of the curriculum to meet the needs of individual students, the extension of child guidance facilities, the improvement of recreational facilities after school hours, and the improvement of housing conditions.

The segregation of juvenile delinquents from older criminals is prompted by more than the desire to spare the child the shame of being stigmatized as a criminal. Since the juvenile delinquent is usually the child who has already demonstrated his inability to adjust to the environment, calling him a young criminal and letting him regard himself as a criminal may strengthen his asocial tendencies. Largely for this reason, the juvenile delinquent is often treated as a child with a problem, rather than as an offender. Placing him on probation assures careful supervision—when the number of trained probation officers is adequate—without the added complication to readjustment that commitment to an institution so often presents. When a study of the case indicates that removal from his present environment is necessary, the juvenile delinquent is usually committed to an institution that does not resemble the usual prison, or he is placed in a foster home.

JUVENILE DELINQUENTS

There is, in the United States, considerable variation among communities in the treatment of the juvenile delinquent. In some states, all offenders below a given age are treated as juvenile delinquents regardless of the nature of their offense; in other states, any person who commits a serious offense, for example, murder, is treated as a criminal regardless of his age. There are, too, a number of communities where the facilities for studying and treating juvenile delinquents are

so inadequate that there is a wide gap between current professional thinking about juvenile delinquents and the actual practices in these communities. M.S.Q.

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KALAMAZOO CASE. The second half of the 19th century witnessed a great struggle as to the constitutionality of taxation for the support of high schools. Settled as early as 1819 in Massachusetts, the question arose frequently in the West during this period; of these late 19th century cases the Kalamazoo Case, *Stuart v. School District No. 1 of Kalamazoo*, 30 Mich. 69 (1874) was one of the most influential and was widely used as a judicial and legislative precedent.

Decided by one of the most distinguished of American judges, Thomas Cooley, the case arose as a friendly suit to restrain the collection of such portion of the school taxes as was voted to support the village high school. The issue revolved about the fact that the statute did not expressly provide for a publicly supported high school. Specifically rejecting arguments that such public instruction was invalid as not being practical, or as intended only for a few, Justice Cooley found a "general State policy . . . in the direction of free schools in which education, and at their option the elements of classical education, might be brought within the reach of all the children of the state." (See SUPPORT OF EDUCATION.)

H.N.R.

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KELLOGG FOUNDATION—See FOUNDATIONS, PHILANTHROPIC.

KERSCHENSTEINER, GEORG (1854-1932). Kerschesteiner was the outstanding German educator of his time. The first period of his career was spent as an elementary school teacher, but growing dissatisfied with the type of formal training he received, and feeling deeply his lack of real understanding, he studied mathematics at the University of Munich and became a successful teacher and educator at a *Gymnasium*. In 1895, when he

was named head of the Munich school system, he was confronted with two practical problems: the reconstruction of the elementary school curriculum and the reorganization of the education of adolescent workers of an industrialized nation. He solved both in opposition to the intellectualism of the Herbartians and in agreement with the principles of Pestalozzi. (See HERBART; PESTALOZZI.) His solution of the second problem was to transform the intellectualistic continuation school into a vocational school. In justification of his work he formed his theory of education, the formulation and exposition of which occupied him from 1929—when he resigned his post in the Munich school system and became professor of education at the University of Munich—to the time of his death. Under the influence of classical German philosophy and its interpretation by Windelband and Rickert, and increasingly of the Dilthey-school, particularly Eduard Spranger, he systematized his *Theorie der Bildung* (theory of education).

Kerschesteiner distinguishes three aspects of *Bildung*: the axiological, the psychological, and the teleological. *Bildung* is never general, encyclopaedic; it is always personal. It demands of everyone that he embody in his individual form (*Gestalt*) the absolute ideas of the good, the true, the beautiful, and the holy, thus promoting in collaboration with his fellow men the harmonious realm of God on earth. From this follows the second, the psychological aspect, that describes the way in which the spontaneous force of the individual strives to an ever better and ever more conscious integration, i.e., his personal structure, his *Wertgestalt*. This process of development is organic, not mechanistic formal training. However, the striving is aimless if the third, the teleological, aspect is neglected. Only in contact with man-made objective culture (*Kulturgut*) can we find our personal interest, our real vocation in this world. Only that part of culture becomes

KINDERGARTEN

meaningful and educative (*Bildungsgut*) to us which strikes a responsive chord in our growing personality. According to this "basic axiom of the educative process," *Bildung* becomes identical with our vocation, which is not just a job but the fulfillment of our life. In humanizing our vocation we humanize the community, the state in which we work, making it more and more a symbol of the eternal values. Critics of Kerschensteiner question whether such an ideal harmony of job and vocation is ever possible in our civilization.

In applying this concept of *Bildung* we understand three conclusions: First, education is civic (*staatsbuergerlich*). As a symbol of the highest values the state is *Kulturstaat*, the cultural norm; that is, it is the aim and, even in its imperfect realization, the master of education. The way that leads to that aim is vocational education. Secondly, the form of education is the activity school (*Arbeitschule*). This means planned and cooperative activity of responsible and devoted individuals striving under the guidance of the teacher for the final perfection of each task. This activity is not play, nor does it furnish egotistical satisfaction or meaningless formal training. Thirdly, the school is unified. It differentiates on the secondary level according to the idealistically conceived differentiation of vocations, so that all human types may find themselves. Kerschensteiner complained constantly that the technical *Gymnasium*, one of the most needed of all *Gymnasien*, was still missing in the German school system.

Kerschensteiner's practical suggestions show strongly the influences of John Dewey and the democratic Anglo-Saxon school tradition; but his theory follows, in the main, Pestalozzi, Goethe, and German idealistic philosophy. It could not be otherwise. He postulated a static ideal democracy, as there has never been a real dynamic democracy in Germany.

F.K.

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KINDERGARTEN. The kindergarten is a type of school founded by Froebel (*q.v.*) in Germany in 1840 but is now a name commonly used to designate any school for children between four and six years of age.

The Froebelian kindergarten was a radical departure from the school procedure of 1840, where instruction was formal and conducted by rote. It introduced excursions, stories, games, and handwork. It recognized play as the child's way of learning about himself and the world.

The subject matter of the Froebelian kindergarten is presented in Froebel's book *Mutter und Kose Lieder*, which contains a series of plays for children. For the mother and teacher there is a statement of the truths underlying each game. The compilation was an outgrowth of Froebel's observation of mothers with their children, and the plays were chosen for their lessons of social or spiritual significance (e.g., family love, unity, dignity, interdependence of labor, and the visible effects of invisible power). In these plays emphasis is laid upon the excursion as a point of departure for all instruction. Interpretation follows through song, game, and story.

Froebel devised a series of educational playthings that embodied his belief that everything in nature symbolizes either unity or diversity or the reconciliation of the two. These playthings, or *gifts* as they were called, consisted of solids, planes, lines, and dots and were presented in that order. The sphere symbolized unity, the cube diversity, and the cylinder the mediation of the two. From these were derived all other forms. Froebel believed that the child could get an inkling of this (although he could not formulate it) through handling these symbolic forms.

The children sat or played games in a circle, for this form symbolized the social pattern. Each child was different from the other, but each was necessary to complete the whole.

The first kindergarten in the United States was a private school. It was established in 1855 at Waterloo, Wisconsin, by Mrs. Carl Schurz for her own children. Philanthropically minded people saw the value of the program for children living in the thickly settled sections of big cities and kindergartens of this

sort were established by private groups, churches, missions and social settlements.

In 1873 the first United States public school kindergarten was opened in St. Louis, Missouri. In 1891 a resolution was passed by the National Educational Association that the kindergarten be recommended as part of all school systems. At the present time several states give full state aid for kindergartens, some have permissive legislation, but some make no budgetary provision for them. In such states the public kindergartens are financed entirely by the local boards of Education.

Teacher training has been part of the kindergarten program since the beginning. At first it was given by private individuals—in a six months course. This was later extended to two years. The state normal schools offered two year courses in kindergarten training as the public school kindergartens increased. This was extended to four years when the normal schools became teachers' colleges.

In 1892 the kindergarten teachers organized the International Kindergarten Union. With membership extended to primary and nursery school teachers the name was changed in 1930 to *Association for Childhood Education*. The association has headquarters in Washington, maintains an office and paid staff, and publishes a monthly magazine: *Childhood Education*.

With changing concepts of child development, of growth, and of educational procedures, the kindergarten in the United States has changed its form. New, larger, and more varied materials have taken the place of the *gifts*. The subject matter has changed to meet present day needs, and the symbolic and metaphysical approach has been abandoned for a realistic one. Freedom of expression and movement, development of self-reliance, and use of excursions, stories, songs, hand-work, dramatization and parent education remain.

The beginning of the 20th century saw a growing tendency toward unifying the aims and practices of the kindergarten and those of the primary grades, as exemplified in the introduction of kindergarten-extension classes. The establishment of kindergarten-primary teacher training courses facilitated the introduction of the basic principles of

kindergarten education into the primary grades. Recent investigations tend to show that children who have attended kindergarten exhibit superior development of social traits in later years; make better progress in reading, and arithmetic; and are generally less retarded in the grades than non-kindergarten trained children.

The trend today is to speak in terms of early childhood education—which begins at birth and extends to adolescence, rather than to think of such distinct schools as the nursery school, the kindergarten, the primary grades, and the grammar school. (See also KINDERGARTEN EXTENSION.) J.N.H.

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KINDERGARTEN EXTENSION. The extension of kindergarten aims and practices to modify procedures in the primary grades and to mold those of the nursery school was a significant movement of the first third of the 20th century. Beginning in 1873 the publicly supported kindergarten (*q.v.*) in America was gradually established in many cities as an institution quite separate from the existing elementary school. Until the close of the 19th century, the majority of kindergartens were formal institutions adhering to the more symbolic and mystical aspects of Froebelian doctrine. (See FROEBEL.) By the turn of the century progressive elements, supported by the youthful child-study movement, were beginning to make their influence felt. They stressed the principles that education is a process of development rather than one of instruction, that play is the natural means of development for young children, that creative activity is essential, and that the child's present needs and interests rather than future needs should determine the choice of methods and materials.

Primary teachers observed in the kindergarten new attitudes toward children, new activities, methods and materials. Gradually these new ideals and procedures were adopted by first-grade teachers and to a lesser extent by teachers of grades two, three, and even higher grades. In some school systems this trend led to the formation of *kindergarten extension classes* in which kindergarten teachers stayed with their pupils for an extra year and thus taught in the first grade as well as in the kindergarten; in other school systems, the influence of the kindergarten found expression in the modified practices of the regular primary grades teachers. Music and rhythmic activities, drawing, story-telling, games, dramatic play, construction with blocks and other materials, and nature study were among the contributions of the kindergarten to the primary school. The unification of kindergarten and primary education was promoted by leading educators, teacher training institutions, supervisors, and professional organizations during the first four decades of

the present century.

The nursery school (*q.v.*) represents an extension of the kindergarten to provide an educational environment and guidance for children from two to four or five years of age. From the beginning, the ideals of the nursery school have been like those of the kindergarten, and nursery schools have appropriated such materials and practices of the kindergarten as have been found suitable for younger children.

J.A.H.

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KOKUTAI—See JAPAN, EDUCATION IN.

KOSCIUSZKO FOUNDATION — See SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

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LADDER SYSTEM—See EDUCATIONAL LADDER.

LALOR FOUNDATION—See SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

LAND GRANT COLLEGES. During the third and fourth decades of the 19th century there developed in the United States a rising interest in the education of agricultural and mechanical leaders. Resolutions were presented to Congress urging the establishment of colleges of agriculture and mechanical arts. Even before Congress took any action, some of the states, notably Pennsylvania and Michigan, established such colleges. Finally in 1859 a bill sponsored by Senator Justin S. Morrill of Vermont was passed by Congress granting 20,000 acres of public land to each state for each senator and representative the state had in Congress, for the endowment of a college of agriculture and mechanical arts in that state. President Buchanan, however, vetoed the bill because he believed that it would interfere with existing colleges in the various states.

In 1861 Senator Morrill introduced a similar bill, except that the grant was raised to 30,000 acres for each senator and representative, and military science and tactics were added to the curriculum. (See MILITARY EDUCATION.) This bill was passed by Congress and signed by President Lincoln in 1862. A total of 11,367,832 acres of public land was given to the states to endow these colleges, and fifty-one states and territories now receive grants from the federal government to help support these schools. Eighteen states added the land grants to the endowment of their existing state universities and added the new work as part of the university. Three of the states gave the grants to private institutions already established within the state, and thirty established new and separate agricultural and mechanical colleges.

Probably no aid for education given by the

federal government to the states has proved so fruitful as have these grants of land (and later of money) to the so-called land grant colleges. Most of these colleges have had a tremendous influence upon the development of their states, and the educational importance of the Morrill Act of 1862, establishing them, cannot be overestimated. E.H.W.

LAND GRANTS. Land grants in education are gifts of land, usually to be sold and the proceeds used for the support of schools and colleges. The term is used most frequently to describe national aid or subsidies in the form of land to local authorities for educational purposes. In our own country, land endowments began in the New England colonies, and were continued by the Federal Government after it was established. In the early days of our national history, the resources of the government consisted more largely of public lands than of money. Until well after the Civil War, educational subsidies by the Federal Government to the states were usually in the form of land.

At the close of the Revolution, there were many conflicting claims to the land lying between the Alleghenies and the Mississippi. To settle these disputes, the Continental Congress proposed that the states cede their claims to the national government and thus create a great national domain of public lands. These lands were surveyed into rectangular townships six miles square, made up of sections one mile square, and offered for sale to settlers. Two large parcels of land on the Ohio were sold to companies, and to help the sale each company was granted one entire township for a college, and the sixteenth section of each township for schools. This action became the basis of the future government land policy.

When Ohio was admitted as the first state, the question arose as to whether the new state could tax the public lands belonging to the Federal Government. To settle this question,

LANGUAGE ARTS

Ohio agreed not to tax the public lands—nor, if sold, would they be taxed for five years after sale—if the Federal Government would give the sixteenth section of each township for the maintenance of schools. This was done, and the policy was continued in the case of every new state admitted thereafter. In fact, with the admission of later states, the grant was raised to two and sometimes four sections of each township. Other types of lands, such as saline and swamp lands, were also granted for the support of schools, and national land grants for the endowment of public education formed the basis of permanent school funds in all the states west of the Alleghenies. The Federal Government over the years has given grants of land totaling about 145,000,000 acres to the states for public schools.

The gifts by Congress to the new states of national lands for the support of public education, although begun as a land-selling proposition, helped to create sentiment for public schools and enabled the states to set up state school systems supported, in part at least, by state school funds. (See *LAND GRANT COLLEGES.*) E.H.W.

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LANGUAGE ARTS. At all levels, communication in speech or writing requires a social and psychological adjustment to people and situations. Language is the child's chief mode of social responsiveness and lends both meaning and continuity to his experiences. It is the function of the program in expression to stimulate the child to share his thoughts and experiences with others in the daily relationships of life in and out of school by helping him to clarify his meaning to himself, select and order his ideas in terms of his purposes and the interests of his audience, and embody them in language precise enough to be understood adequately, with due regard for acceptable standards of usage and for the social amenities associated with the given situation. With growing social and linguistic maturity, the child should develop restraint, sincerity, intellectual honesty, a

sense of responsibility for clarity of presentation, and a feeling of security in solving his language problems.

Beginning with Clapp's *The Function of English in American Life*, research on the curriculum in expression has yielded substantial agreement on the broad program, though emphasis on particular phases, such as minimum essentials or creative writing, varies with the educational philosophy and language status of the school. On the elementary level, speech experiences include conversation; telephoning; discussion; planning and reporting (especially in connection with activity units); recounting personal experiences and other stories—real and imagined; dramatization; explanation, including directions and announcements; reviewing; and speaking to large groups. Experiences in writing, as distinguished from those common to speech and writing, embrace social and simple business letters, creative expression, and the keeping of records in the form of minutes, summaries, logs, diaries, and memoranda, usually in connection with units of work. On the secondary level, the same areas are explored, except that the social and psychological problems are more complex in that they require deeper insight into the interests and motives of the other person; for example, putting a new acquaintance at ease during conversation or persuading dormant club members to attend a rally and pay back dues. Likewise, sincerity must accompany more refined language techniques, especially in effective public discussion, if attempts to arrive at valid conclusions are not to deteriorate into verbal jiu-jitsu. The ultimate objectives are the same for all, but the standards of expectancy and the materials used vary with individual ability and need.

Under the impetus of the publications of the National Council of Teachers of English, the trend toward basing the curriculum in expression squarely on the language needs of life, including school life, of which adolescents are acutely conscious, has been marked even on the secondary level, where the writing of weekly themes and paragraph exercises has been traditional. Mental discipline, purportedly inherent in theme writing, can more richly be achieved in creative expression, in which discipline is self-imposed so that the writer may interpret his thoughts to himself,

release emotional tension into patterned channels, and share the universal aspects of his experience with others. Likewise, the logical organization required of a formal essay written in a quasi-vacuum, without a definite reader in mind, can be supplanted by the functional organization of committee reports, editorials, and reviews. However, sheer inertia, the requirements of regents and college entrance examinations, the poor quality of freshman writing, excessive compartmentalization of subject matter which prevents integration of expression with "content" aspects of unitary problems, and the complexity of skills essential to connected written discourse—all have kept the traditional theme entrenched in the high school.

The creative writing movement, launched in an atmosphere of esoteric mysticism and sentimentality, has been stabilized through psychological analysis of the process and revelation of its similarity to other forms of oral and written expression. As indicated by John T. Fredericks, "Creative expression occurs when a person recognizes the dignity of his experience and imposes on it the discipline of expression in an effort to share it with others." The teacher's chief objectives are to amplify the range and improve the quality of experience and help the pupil to select the right word and suitable form, be it poetry, drama, short story, or informal essay. To evoke creative expression, the teacher requires, not a specialized methodology, but insight into subtle intellectual processes, sympathetic understanding of individual emotional states and moods, ability to distinguish between the pedestrian and newly coalesced phrase, tact in selecting the right moment for constructive criticism, skill in creating classroom conditions conducive to self-revelation, and provision for some form of publication. The issue as to whether the teaching of creative writing should be limited to the talented few depends on whether the criterion of evaluation is the literary quality of the end-product or the opportunity afforded to all children for personality integration, keen observation, lively yet controlled imagination, depersonalized reflection, and the fusion of these activities with the apt word and esthetically satisfying pattern.

Broad methodology may be described in terms of the composition cycle. In his long-

range planning of units, the teacher envisages a hierarchy of aims and enabling objectives and breaks down unitary speaking and writing experiences into their component skills. Language situations, such as inviting another class to witness a play, are then created or allowed to define themselves, so that genuine motives for communication are induced. The period of exploration and organization, conducted individually or in groups, is spent on plans, guide questions, tentative outlines, amenities to be observed, and anticipated difficulties in vocabulary, spelling, and other technical matters. The trial performance or writing period is followed by correction and revision with the advice of teacher and "fellow-craftsmen," so planned as to develop progressive skill at self-criticism. Publication, actual or vicarious, is followed by analysis of reasons for success or failure in terms of audience or reader reaction, comparison with superior specimens culled from student writing, and generalization of a significant principle for later reapplication.

The functional teaching of technical English, including spelling (*q.v.*), embraces the use of technical English both as a positive, integral phase of speaking and writing experiences and as an organized corrective program. Since scientific investigations have failed to show the effectiveness of grammar in the elimination of usage errors, the concepts of grammar are best used to solve practical language problems concerned with relationships among sentence elements in the process of building effective sentences and coherent paragraphs. For example, deeper insight into grammatical concepts and their terminology (which is really an economical form of expression practiced in all crafts) develops with their use to choose the correct case of the pronoun, to condense simple, "safety-first" sentences into complex ones showing relationships more clearly, to secure variety of sentence openings by transposing phrases and clauses, and to combat the sentence fragment or run-on sentence.

What constitutes correctness in English usage must be determined primarily by scholars conversant with linguistic change in accordance with the following criteria: the best practice of able speakers and writers of our day, the recognition of social levels of speech, the validity of geographical varia-

LATIN, TEACHING OF

tions, and the historical development of the language. The corrective program in good usage should be based on an error survey of the school and community, with stress on really serious errors, and individualization of remedial instruction following the administration of standardized and informal diagnostic tests. (See *DIAGNOSIS, EDUCATIONAL*.) In like manner, rules of punctuation and capitalization should be validated by current good usage in the manuals of style of reputable publishers rather than by the arbitrary judgments of 18th century lexicographers. Though the conventional uses of punctuation are best taught through drill, those amenable to rationalization should be approached as a set of symbols, comparable to words, essential to clear, forceful, unambiguous communication of ideas in writing. The corrective program in speech, beyond the simpler problems of voice projection, enunciation of vowel values, and of cognate confusion, should be conducted by speech specialists. (See *ENGLISH, TEACHING OF; SPEECH EDUCATION*.) S.S.

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LATIN, TEACHING OF. The ultimate objectives of the study of Latin, as determined by *The Classical Investigation* of 1924 (q.v.), are:

1. Increased understanding of those elements in English that are related to Latin.
2. Increased ability to read, speak, and write English, and increased efficiency in the use of the mother-tongue as an instrument of thinking itself.
3. Increased ability to learn other foreign languages.
4. Development of correct mental habits.
5. Development of an historical and cultural background.
6. Development of right attitudes toward social situations.
7. Development of literary appreciation.
8. Elementary knowledge of the simpler general principles of language structure.

9. Improvement of the literary quality of the pupil's written English.

These ultimate objectives are to be obtained chiefly through the primary objective of the progressive development of power to read and comprehend Latin. But as transfer of these abilities, attitudes, and knowledges is not automatic there must be special training for transfer until it becomes automatic. Each term's work in Latin must be worth while for values contemporaneously realized, and not merely for ultimate values.

In some schools the study of Latin is being crowded out of the curriculum because of its difficulty, its supposed lack of practical value, and the competition with other subjects, but in a large number of our high schools it still has a larger enrollment than any other foreign language.

The teaching of Latin has suffered at the hands of some conservative teachers who are still following old methods. However, great improvement in methods resulted from the work of *The Classical Investigation* (q.v.). Under the newer methods, the transfer of desirable habits, knowledges, and skills from Latin to life situations is consciously fostered and developed. The recent textbooks are attractive in design and appealing in their selection, presentation, and illustration of meaningful subject matter.

The idea, prevalent in some quarters, that Latin is dying out in our high schools is not warranted by the statistics in the reports of the Commissioner of Education. This idea is supported at first glance by the declining percentages, shown in the first column of the table reproduced below, of public high school students who are studying Latin. The number of students in Latin courses, however, has continued to increase, as can be seen from the right-hand column.

Percentages of the High School Population and the Number of Students Studying Latin (1910-34)

	Per Cent	Number
1910	49.05	362,548
1915	37.32	434,925
1922	27.52	593,086
1928	21.99	636,952
1934	16.04	721,320

The apparent discrepancy between the two columns above is explained by the fact that although the number studying Latin has steadily increased, the total high school population has increased much more rapidly. An

interesting fact to be noted is that while, with the increase in high school attendance, many new subjects have been added to the curriculum, nevertheless the number of students taking Latin has increased.

R.H.T.

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LAW—See EDUCATIONAL LAW AND LEGISLATION; LEGAL EDUCATION; TEACHERS, LEGAL STATUS OF; UNITED STATES CONSTITUTION AND EDUCATION.

LAW SCHOOL—See LEGAL EDUCATION.

LAWS OF LEARNING—See LEARNING.

LEADERSHIP TRAINING. Leadership training may be defined as a conscious effort in an educational agency to develop in pupils believed to have leadership potentialities those qualities found to be associated with leadership. This effort has been stimulated in recent years by research showing what qualities are associated with demonstrated leadership, by research purporting to show that these qualities are educable, and by a growing conviction that the success of democratically governed enterprises depends upon capable leadership. Qualities found to be associated with leadership include high intelligence, initiative, courage, self-reliance, kindness, tact, fairness, energy, and the like. It has been demonstrated that pupils placed in positions of leadership grow in these qualities, their development being more rapid than that of the other pupils. Emphasis in leadership training in the school has been upon participation in school activities. Especially, it has been urged that student self-government plans both train and identify leaders. Segregation of potential school leaders in special classes has generally been abandoned. Special courses for leaders have had some vogue. A more common practice is that of discussing leadership in home rooms or in special orientation or personal development

classes. There are many published manuals for such discussion groups which contain units on leadership. "Leaders Clubs" have been employed in some schools both to honor and to train student leaders.

Leadership training has a special meaning in religious education, referring to the training of church school teachers, supervisors, and administrators.

G.E.H.

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LEARNING. Some of the controversies which arise in an attempt to explain learning may be owing to the fact that it is impossible to give a single descriptive definition of learning. There is little similarity among the processes of learning a poem, mastering the ability to divide a number by another number, learning to like a disliked food, learning to waltz, learning that a certain sound means an airplane is approaching from the west, learning how to get along with neighbors, learning the shortcuts to the railway station, gaining an understanding of Plato's philosophy, etc. Nor is the resultant of the learning in each of these cases the same. The common feature is that in every instance some change has occurred in the individual. He now can do what he previously could not do.

Explanations of how these changes are brought about are made on different levels. The practical man usually asks how certain learnings can be brought about, or brought about in a shorter time, or brought about more effectively. When he asks, "How do we learn?" he wants an explanation in terms of rules which will tell him how to arrange the factors in the environment or what method of attack the learner should use. Answers cannot be supplied him, however (except as he can be told that in a particular type of situation this specifically described method brings better results than that specifically described method), without theoretic explanations of how learning takes place being used as a matrix for making deductions and for generalizing principles.

Explanations of how learning takes place have been couched in metaphysical, physi-

LEARNING

ological, and psychological terms or in some combination of these. Every school of philosophy and every school of psychology involves some theory of learning. Bode, who combines the disciplines of philosophy and psychology, contrasts learning theories on the basis of their conception of the relation between "mind and body". He distinguishes various schools of thought: (1) schools of thought which hold to a complete dualism of mind and body and make the mind alone responsible for all knowledge, (2) schools of thought (e.g., *structuralism*) which accept the dualism but which postulate that though there is no connection between mind and body, changes in one, as learning takes place, parallel changes in the other, (3) schools of thought (e.g., *behaviorism*) which deny the existence of mind altogether and attempt to explain learning on the basis of specific physiological changes only, and (4) schools of thought (e.g., *functionalism*, *pragmatism*), which grant mind an "emergent" status, and therefore deny that learning ever can be explained in purely physiological (or neural) terms, even though learning always has a physiological base.

The physiological explanation of learning has occupied the attention both of those who accept the theory of mind as an emergent in the evolutionary process and of those who deny the existence of mind. Most of the physiological theories are neurological explanations. Unfortunately, findings derived by neurologists in this study of the nervous system (*q.v.*) sometimes are expanded by psychologists into theories which in the end have little experimental evidence to support them. Such almost purely hypothetical neurological explanations, framed originally to bolster a psychological theory of learning, may in turn force the psychological theory into channels from which extrication becomes difficult even when observation of behavior demands it. It must be kept in mind that direct study of the nervous system may bring forth descriptions of its functioning that are reliable but from which principles of learning cannot be deduced. On the other hand, certain kinds of physiological experiments contribute directly to the proof or disproof of psychological theories. The work of Lashley, Sherrington, and Child, for example, contribute data which are valuable for resolving the

controversy between the defenders of the atomistic and the defenders of the holistic theories of learning. When Lashley's surgical operations on animals showed that specific learnings were not localized in specific brain pathways, the synaptic theory of neurone connections could no longer be used to bolster the psychological theory that all learning consists of the building of specific connections between stimulus and response through the process of repetition that stamps these connections into the brain.

Other neurological findings are useful not because they tell us what happens to the nervous system when learning takes place but because they indicate conditions that prevent learning from taking place. Improvement of our knowledge of the organic foundations of intelligent behavior may lead eventually to better formulations of principles of learning. At present, however, most principles of learning depend almost completely upon observation of behavior and very little upon study of the nervous system.

Besides differing in their conceptions of the neural basis of learning, theories of learning differ in many other respects. Some of the principal areas of controversy are those respecting motivation, the amount of insight necessary for learning to take place, the place of repetition in learning, principles of remembering and forgetting, the relation of words to learning, and transfer of learning. Some principles of learning are stated in such a way that they cannot be translated into principles for guiding the learning process. Others clearly imply a technique of education, and these are seized upon and used irrespective of the modifications which their author intended his other principles—unfortunately pragmatically meaningless—to have upon them. Of Thorndike's three famous laws of learning, for instance, laws which were meant to be used in relation to each other, it was the law of exercise and, to a lesser extent, the law of effect that were translated into educational practice, while the law of readiness was disregarded. The law of exercise, which stated that the vigor and duration of the making of a connection as well as the number of times that it is made determine the strength of the connection, was taken to mean that repetition was the keynote of learning. The law of effect stated that when the

making of the connection was accompanied or followed by a satisfying state of affairs the strength of the connection is increased, and that when accompanied or followed by an annoying state of affairs the strength of the connection is decreased. This law pointed clearly enough to the use of rewards and punishments in the teaching process. The third law, the law of readiness, stated that when any conduction unit was in readiness to conduct, to do so was satisfying, while not to do so was annoying. Conversely, when a conduction unit which was not ready to conduct was made to do so, annoyance was the result. The law as stated gives no answer to the question of when conduction units are ready to conduct. Educators who tried to base their teaching on Thorndike's three laws of learning often disregarded completely the law of readiness. Otherwise, they translated it so as to embody some meaning of readiness which they already had. Commonly, readiness has been taken to mean mental-set, and mental-set has been correlated with purpose, motive, or goal.

The tendency for educators to be eclectic in the principles of learning which they adopt, that is, to choose principles deriving from different schools of psychology, probably arises both from the fact that no school has set forth a sufficient number of learning principles that have clear-cut pedagogical implications (sufficient, that is, upon which to base procedures in the various learning areas with which the school is concerned), and from the fact that what look like different principles to different psychologists appear to lead to the same educational practices. (For a discussion of learning theories in terms of schools of psychology the reader is referred to *PSYCHOLOGY, SCHOOLS OF*. In the present article learning will be discussed in terms of the problems facing the educator.)

One of the primary pedagogical questions is whether the learner needs to purpose to learn before he does learn. Can he learn without intent? If so, how effective is such learning? If the desire and intent to learn bring better learning, how can such desire be aroused when it is not already present? That we learn certain things without intending to do so has been recognized sufficiently for the process to be termed *incidental learning*, *concomitant learning*, or *collateral learning*.

Incidental learnings are acquired during the course of pursuing some end, but they themselves do not contribute directly to the attainment of that end. Most likes, dislikes, emotional attitudes, and mannerisms are attained without conscious intent and even in spite of intent to the contrary. They are explained variously in terms of conditioning, of repetition, and of subconscious or even unconscious purposes. It is widely agreed that while complex skills cannot be attained without deliberate intent, attitudes and emotional habits in the majority of cases develop incidentally and are even difficult to attain by deliberate effort. For the educator, this means that all situations must be examined critically to find what concomitant learnings they favor and how they may be changed to increase the chances of bringing about desirable incidental learnings. (See *LEARNINGS, SIMULTANEOUS*.) It means also that where complex skills and understandings, and systematic, precise facts are to be learned, incidental learning cannot be depended on.

Functional learning has been distinguished from incidental learning, functional learning being that which is necessary to achieve one's ends but which is itself not the starting goal of the activity. Thus children may learn to use a yardstick when they measure windows for the curtains they wish to buy for their classroom. There is a good deal of controversy as to how effective are such functional learnings when they are not separated from the gross activity in which they arise and when they are not given deliberate attention on their own account. As with incidental learning, a great deal probably depends upon how complex is the subject matter that has been used functionally but that has not been set-out-to-be learned, and how much repetition is necessary to master it. An important growing agreement is that the best introduction to subject matter is through its functional use and that some functional learning should precede all formal study.

Whether extrinsic motivation is as effective as intrinsic motivation is hotly debated. Thorndike's latest work on incentives (*q.v.*) still leads him to the conclusion that rewards which have no direct connection with the subject matter being learned are almost as effective as intrinsic interest. Others who disagree vigorously point out that Thorndike

LEARNING

deals largely with the memorization of verbal material and that much greater differences might be found if different learning tasks were studied. (See MOTIVATION.)

There is still some, though increasingly less, debate as to whether rewards act as goals serving to direct behavior toward attainment, or whether they merely reinforce the response to which the reward is attached, so that that response is more likely to occur in the future. Those who hold that every response is goal-directed are also ready to accept the fact that individuals will tend to repeat behavior for which they received unexpected rewards. They merely add the interpretation that when that behavior is repeated it is done with the expectancy of a reward and is therefore goal-directed, though not toward the same goal as when first produced. How greatly recall is improved when an unexpected, pleasant state of affairs is added to the end of a study period is not clear, but certain of Thorndike's studies lead one to the conclusion that with some kinds of learnings such an effect does occur.

Another pedagogical question of primary concern to all educators is the query as to what the learner should do so that his learning should progress. This question necessarily involves the problem of the organization of the subject matter the learner is to master. Should this subject matter be arranged in such a way that the responses required of the student are simple enough for him to be able to perform almost immediately, necessitating only repetition on his part for the purpose of fixing the response (that is, making it easily recallable), or should subject matter be learned in terms of problem-situations, necessitating the creation of a solution on the part of the learner? Should the learner be allowed to commit errors or should he be given the pattern and the directions for solving the problem? Since so large a proportion of experiments in human learning have dealt with the memorization of meaningless material or of isolated verbal facts or of lines of poetry, they throw little light on this problem. Some educators answer it with the matter-of-fact statement that one of the aims of the school is to teach students how to solve problems, and not only to teach them the solutions to problems. They therefore discount the value of experiments that seek to

compare how quickly solutions are learned when a large degree of guidance is given and when little or no guidance is forthcoming. They are interested more in determining what types of guidance in the solution of specific problems will increase problem-solving ability, if not in general at least in a broad area of subject matter. Some rather widely accepted hypotheses for such guidance are (1) that the problems set before the learner or the problems which he encounters and which he is encouraged to solve should be so related to the level of his understanding that he need not proceed by random trial and error, (2) that any general systematic methods for proceeding which are taught the student should be such as are suitable to his intellectual level and not those that are used by experts in the field, (3) that the student be taught to use his errors as clues for further hypotheses, (4) that the student must attain certain facts and general principles in a subject area before he can solve problems in that area.

The old theory that every response one makes is directly stamped into the brain led psychologists to warn educators that pupils must not be allowed to make errors, since if they made an error even once there would be a tendency for them to repeat that error. This led to the practice of requiring children to learn by imitating closely the pattern which the teacher set. Careful count of each response that animals made in maze learning or in getting out of problem boxes showed that the response which they finally retained was the one which led them successfully to the goal and not the one which they repeated most often. Analyses of such experiments have led to the conclusion that one remembers what not to do as well as remembering what one should do to be successful in a situation. Students may be allowed to make errors; they will not retain them if the goal toward which they are working is clear enough to them so that they know which of their responses are correct responses leading them to the goal, and which are wrong responses, not leading to the goal.

Since so much of learning is not problem-solving, as that is ordinarily defined, the question arises as to how the student should proceed with factual material and in what way factual material should be organized for him.

Gestalt psychologists and others propose that whenever possible even factual material should be presented in the nature of a problem. Since many facts may be inferred from other facts when these are known, it is suggested that the subject-matter of the curriculum be so organized that the students will have an opportunity to make such inferences. It is not suggested that this organization of known facts and the inferring therefrom of a new fact or principle replace repetition as a method of learning. It is emphasized that repetition has a place in most learning but its place is rarely at the beginning of the learning procedure. First must come the attempt to relate facts, to understand them in their relations, to gain "meanings". The drill which the learner gives himself after he has gained such understanding will be much more effective than drill which is used from the outset of the learning period.

How the learner should distribute his learning time cannot be answered except in terms of the nature of the material or process he is learning and the method of learning that he uses. Data which were gathered in experiments dealing with *distributed repetition* cannot be used to draw conclusions for the optimum length of learning periods where drill will not be the sole method of learning. However, two criteria have emerged which seem to hold with regard to the length and distribution of practice periods, no matter what the subject of learning and what the learning method used. The first of these criteria is that when fatigue (*q.v.*) sets in the efficiency of learning declines. The second is that the human organism seems to need time to learn. This may be interpreted as meaning that the nervous system needs time to integrate the changes which learning brings about. It may also mean that spread of time is beneficial because this gives the learner an opportunity to make all sorts of incidental connections between the new learnings and what he already knows, and the more connections learnings have the better are they remembered. These interpretations, both of which may be true, support the empirical findings that, in general, learning proceeds better when study periods are distributed rather than massed closely together.

The problem of the optimum length of each learning period cannot be settled except as

there is a decision as to what is the best unit of learning. This latter problem commonly is stated as the whole-part problem in learning. Like most questions asked in terms of a dichotomy it is erroneously stated. The question is not whether one should study the whole thing at one time or divide it into parts to be studied separately. Some wholes are so large that they cannot be encompassed at one time even if the learning period is several hours in length. The emphasis on the whole, or the gestalt, does indicate, however, that subject matter should be so organized that the parts into which it is divided have sufficient meaning in themselves to be able to stand alone. Moreover, the gestalt principle that learning proceeds from a vague conception of the whole to a clear view of the details and an understanding of their relationships means that the unit of learning need not be so simple that it can be grasped fully during a single learning period. When complex units are selected, the learning periods succeeding the initial one cannot be drill periods. There is repetition in that the learner meets the situation again, but he now views it from different angles and sees new meanings in it.

How far learning can be done in terms of words and yet be applied in situations where more than the recall of the words is necessary is another problem which has received study. At one time the verbal learning of rules, principles, and directions occupied the major part of the pupil's school day. Educators failed to take account of the fact that even when verbal directions for doing something are directly in front of one and do not have to be remembered, they are often difficult to follow in performance. That one learns to do by doing is now an accepted principle, though not fully adhered to in all schools.

How much one can learn to *understand* without doing and experiencing is a related question. Here Dewey's emphasis on the relationship between experience and education has done more to influence present thinking on the subject than has any school of psychology. It is now generally accepted that some direct experience is necessary as a foundation for verbal meanings. One of the distinguishing features which mark progressive educators is their belief that a good deal of such experience is necessary and that verbal meanings built upon a thin base of experiences tend to

LEARNING, CURVE OF

be faulty. It is held that related experiences must be brought to the printed pages for it to be understood and only then can further meanings be built up from the verbal material. Investigations as to the effectiveness of the radio as a learning medium indicate clearly that although the radio has an appeal for children, a good deal of what they hear puzzles them or gives them erroneous ideas. The fact that a radio program has dramatic interest does not change its verbal character.

The involved relationship between verbal understanding and practical understanding brings difficulties to the measurement of learning progress. Shall a child be given credit for "knowing" when he recognizes a verbal fact as being true when it is true, and as being false when it is false? This will be difficult to do if the findings of one study should prove to be general, findings which showed that children who could match accurately the names of geometric forms with their verbal descriptions could not identify these forms when they were drawn on a plane surface. Before curves of learning (See **LEARNING, CURVE OF**) can be investigated, what is meant by learning in each instance must be defined. (See **CHILD PSYCHOLOGY, EDUCATIONAL PSYCHOLOGY, INCENTIVES, MOTIVATION, SCHOOLS OF PSYCHOLOGY, TRANSFER OF TRAINING.**)

B.B.F.

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LEARNING, CURVE OF. The progress of learning may be portrayed graphically by a learning curve. When plotting a learning curve, the vertical axis usually represents degrees of learning as measured in such units as the number of words read in one minute, the number of examples done correctly, the score on a standardized vocabulary test, or any convenient measure appropriate to the kind of learning being investigated. The horizontal axis usually represents the number of practice sessions, or the lapse of time as measured in days, weeks, months, etc. If we were to plot the curve of learning for a student who is learning to typewrite, for example, we could measure the number of letter strokes made per minute in tests conducted at weekly intervals. After these scores have been plotted on the graph and the points connected in succession by a series of straight lines, the resulting graph is the student's learning curve.

All attempts to establish a typical curve of learning have failed. The curve of learning is neither typical for an individual nor for a specific task to be mastered. When curves of learning are drawn to represent the progress of an individual learner, many fluctuations rather than steady improvement are in evidence. It is only when the curve represents the average improvement of a group that it becomes smooth. While it is difficult to account for regressions in learning, it is important to take the universal fact of temporary regression into account when evaluating the progress of a student. No student should be told that each of his trials is expected to be better than his last.

Before curves of learning can be drawn, there must be a clear definition as to what improvement implies. Improvement may be measured in terms of the speed with which the task is completed or the number of wrong moves made before the correct solution is accomplished, or the number of errors made in a task consisting of uniform subtasks, or in terms of the age or grade or percentile norm reached on standardized tests. Some of these measures can be applied frequently, thus allowing a curve of learning to be drawn which represents only a short space of time. Others can be applied only at comparatively long intervals. The length of time between

each testing affects the shape of the curve of progress.

In many cases, learning curves have been found to be negatively accelerated. In such situations the rate of learning is greatest in the initial stages with a gradual diminution in rate as the learning proceeds. Speed curves usually show such negative acceleration. The question has often been asked as to whether there is a final level or limit to learning. Certainly improvement often reaches a limit but it is not easy to tell whether this is a real physiological limit or whether it is a plateau above which, in time, improvement again may rise.

A plateau is a period during which there is no evidence of progress in learning. Progress may be actually or only apparently arrested. Lagging interest or motivation, satisfaction with the present level of achievement, or a particularly difficult phase of the material may account for the plateau. It is thought also that a plateau in the learning curve sometimes represents a period for consolidation, organization, and assimilation of past learnings. In such cases time will bring again a rise in the curve. When a plateau persists, new motivation or a new method of teaching or learning may end it and even bring a sudden acceleration of progress.

Initial and end spurts in the curve of learning also have been found. Initial spurts are easily explainable in terms of the strong motivation often present at the beginning of a learning task and also in terms of the use of past learnings that are applicable to the new task. End spurts, by no means typical of learning curves, sometimes occur when the learner knows he is ending his learning periods. Such spurts are caused probably by the desire to make the final showing as good as possible. Sharp rises in the midst of the learning curve sometimes are owing to insight or the sudden understanding of the solution to the problem.

Learning curves are merely descriptions of progress that has already taken place, rather than being predictive of progress to be expected. Nevertheless they are useful both to the learner and to his teacher. Time and again a knowledge of results has been found to be an effective incentive. The learner, when not satisfied with his progress as shown by his learning curve, may proceed to di-

agnose his difficulties. His teacher will aid in such diagnosis as well as give help in overcoming the difficulties. The teacher may also introduce factors to increase the learner's motivation. In some subject matters, however, where each task is different from the previous one, it may be unwise to reduce the quality of each to a common factor which can be measured clearly enough to produce a curve of progress. The measurement and comparison of the common factor may emphasize it at the expense of the other factors involved in the quality of each of the tasks. The greatest abuse of the learning curve on the part of teachers has been their demand that pupils improve regularly in the quality of their work, even though the tasks given the students vary from test to test. The demand for constant improvement in the weekly spelling test or in the monthly grade received for arithmetic implies a belief that, given time, everyone will eventually become a fast learner. With practice there should be improvement in the ability to do the same task or a similar task on the same level of difficulty. The curve of learning in spelling should represent the number of words the learner spells correctly at stated intervals of time. It cannot be used to represent the number of new words the learner can master within successive equal time intervals.

B.B.F.

LEARNINGS, SIMULTANEOUS. The concept of simultaneous learnings was developed by Kilpatrick to call attention to the fact that in any learning act the outcomes are always multiple. The girl studying history presumably learns history—"primary learning". But as she works, ideas, suggestions, questions arise out of her study—"associate learnings". These are as truly learning as the primary, for she had not previously thought these ideas, been curious about these questions. In addition learnings of a third type go on—"concomitants", the attitudes, feeling tones, judgments of value, standards, ideals.

Primary learning has until recently received chief attention from teachers. Usually it consists of facts or skills, items which can be assigned and of which mastery can be easily checked. The older generation tended to evaluate schools almost entirely in terms

LEAVE OF ABSENCE

of primary learnings, as these were the only kind recognized and sought.

Associate learning obviously cannot be assigned—the teacher cannot require the pupil to think up connections, questions, implications. But it is from these, and particularly from the disposition to think them up, that richness of knowledge and understanding come. Information is highly essential, but disposition to play with it, look beyond, integrate it with what is already known, see meanings and implications—this is what transforms mere knowledge of facts into fruitful instruments, into meaningful and illuminating insight. Though associate learning cannot be assigned, the teacher can help to stimulate it. He can, by cultivating good learning conditions, by paying attention to the setting in which facts are learned, induce in the pupil a “lowered threshold” for the arising of ideas. He can, moreover, as facts or information are sought, put stress on meaning connections, questioning, applications; he can lead pupils to see that facts are tools.

The *concomitants* or *attitude learnings* are counted by many to be the most significant of all because of their influence on subsequent behavior. Whether the child will put forth effort along any certain line and whether he will use what he learns—this depends chiefly on how he likes what he learns, how significant it seems as he sizes up the situation. If he dislikes it, if it seems unimportant for any purposes he values, then he will abandon his efforts as soon as pressure is removed and he will make slight use of the learnings. Moreover, mental hygienists, and indeed all who are sensitive to personality formation, are especially concerned with concomitants because of their meaning for wholesome emotional adjustment. The likes and dislikes formed on one occasion become, if reinforced in successive situations, one's tastes and aversions. Resentments felt and continued produce sullenness. Cumulative feelings of failure grow into a sense of inferiority or frustration. Outlook on life and behavior patterns are determined in large part by these developing attitudes. In the last analysis it is one's emotional adjustment—determined by attitudes, feeling tones, judgments built in successive situations—which sets the pattern for behavior of all kinds. M.Y.O.

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WM. H. KILPATRICK, *Foundations of Method* (The Macmillan Co., New York, 1925), ch. 1, 8 9.

E. L. THORNDIKE and A. I. GATES, *Elementary Principles of Education* (The Macmillan Co., New York, 1929), see index “Concomitant Learnings”.

LEAVE OF ABSENCE. In order that teachers may have an opportunity to improve themselves in service, many school boards grant teachers leave to be absent without affecting the teacher's tenure or contract. Usually, the teacher receives no salary while on leave of absence. Many school systems, however, pay a part of the salary, and some of them pay the full salary if the leave of absence is for approved study, rest, travel, or other purposes calculated to improve the teacher professionally. (See **SABBATICAL LEAVE**.) On the assumption that the successful completion of suitable courses of study at a college or university increases teaching efficiency, the amount of financial reward is sometimes determined by the number of credits earned.¹ (See **TEACHERS' BONUS**.)

The smaller city and rural schools, except in a few progressive systems, seldom grant leaves of absence. The larger systems, however, almost invariably provide for such leaves.³

A few schools have provisions whereby a teacher may have a leave of absence to teach in another school system for a semester or two in exchange for a teacher from that system.

Teachers are frequently granted short leaves of absence, up to approximately thirty days for personal illness with full pay. Government employees, however, as well as many of those in private concerns, enjoy greater security against loss of pay when absent because of personal illness than do teachers.² (See **SICK LEAVE**.)

In many schools where much pride is taken in the way leaves of absences are administered, granting a leave of absence amounts to the assurance that the absentee will receive his job or another one equally as good in the system when he returns. In war time many such leaves are given to those who leave their teaching posts to enter the armed services. These people are assured of re-employment when they return. D.H.C. and A.R.A.

LECTURE-DEMONSTRATION METHOD — LECTURE

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2. W. D. KUHLMANN, *Teacher Absence and Leave Regulations* (Teachers College, Columbia University, 1933).
3. W. G. REEDER, *The Fundamentals of Public School Administration* (The Macmillan Co., New York, 1941).

LECTURE-DEMONSTRATION METHOD. The combination of lecture and demonstration is a direct teaching method, employed to set forth the relationships of facts for the learner. Its specific purpose is to show concretely the relationships as they occur—for example, the steps of a process or a procedure, the structure of an object or machine, or the nature or properties of matter. The lecture-demonstration differs from the illustrated lecture in that the latter focuses attention on the screen and shows the relationships by means of pictures, slides, moving pictures, or specimens, while the lecture-demonstration focuses attention on the lecturer, who shows the relationships through the use or manipulation of physical materials, machines, or appliances.

The lecture-demonstration is used extensively in such subjects as general science, biology, physics, and chemistry (See SCIENCE, TEACHING OF). In industrial arts and commercial subjects it is a valuable method by which may be taught the steps of processes or the manner of using appliances or machines. In many schools the lecture-demonstration has replaced much of the individual laboratory work (*q.v.*), since by the lecture-demonstration method pupils may observe the relationships when they are being studied in class. However, this method should not be used to the exclusion of individual work, since pupils should acquire the ability to use and manipulate apparatus, or to prepare and use certain materials. Each method fulfills special functions not supplied by the other.

Since the instructor can focus attention upon the important relationships, the chief value of the lecture-demonstration method lies in its economy of time. For this reason a good lecture-demonstration may be more valuable to the student than is his own first-hand experience, because the demonstrator's experience enables him to show the exact relationship to be studied and to help the student ignore unimportant details. Another

advantage in the method is that the money which might otherwise be spent for duplicate individual laboratory equipment may be used in buying a greater variety of apparatus for demonstration purposes.

The effective use of the lecture-demonstration depends upon the following steps: (1) preparation of the learner, in which the instructor leads up to the problem and stimulates a desire to learn, (2) lecture and demonstration, in which the instructor sets forth the important relationships, demonstrates the process, and then stimulates and guides critical analysis by helping pupils to compare, contrast, and evaluate, and (3) evaluation of learning, in which pupils are tested or are given the opportunity to make practical applications in order to reveal how successful the learning has been or to indicate points where reteaching is advisable. If the teacher fails to set forth the problem clearly in his lecture or fails to carry the pupil through the assimilative step, then the teaching has failed. Lecturing alone will seldom suffice; there must be an appeal to curiosity, the use of challenging questions, and careful directions for observation during the demonstration. The voice, manner, and personal bearing of the instructor play an important role in influencing the success of the method. (See LECTURE METHOD.) T.M.R.

LECTURE METHOD. The lecture method as a teaching procedure consists of an oral exposition by the teacher, usually at some length, of facts, principles, or other relationships.

The steady stream of objections to the widespread use of the lecture method arises from many sources. The psychologist, seeing learning as an active process, opposes this method because it often makes so little provision for pupil-activity (*q.v.*). The educational philosopher, emphasizing the significance of the student rather than that of subject matter, regards as outdated a method of instruction that consists so frequently of the teacher's presenting a large mass of teacher-organized and teacher-interpreted factual material for the student to accept and to memorize. The teacher finds fault with any instructional procedure where he carries so much of the burden that he has no immediate means of determining how much his students

LEGAL EDUCATION

are learning. There is always the danger that the lecturer has covered the subject to the satisfaction of no one but himself. Students, too, object, largely because so many teachers are poor lecturers, uninspired and uninspiring. Students find that they lose much of the value of the lecture when they fail to understand certain points, and there is no chance for discussion at the time when it is important to clarify doubtful points. The lecture method places at a serious disadvantage those students who have not learned how to take notes.

The lecture method has survived for centuries for many reasons, and even today, despite the many objections that have been raised to its use, it is still the basic method of teaching at many professional schools and colleges and is found occasionally in high schools. Some of the popularity of the lecture method stems from the fact that it is apparently so easy to employ. The university administrator finds it a convenient way of reducing the cost of instruction by having large lecture classes rather than small discussion groups, and the professor sees the lecture as a relatively simple procedure for presenting a large mass of factual material to students.

Many of the criticisms that have been raised are charges against bad lectures and inadequate lecturers rather than against the lecture method itself. To be sure, many classroom lectures are a wasteful use of student time because the content of the lecture is available, or can readily be made available, in printed or mimeographed form which can be read by students in a small fraction of the time it takes to present it orally. Yet, a skillful lecturer can make a complex concept or an involved procedure much clearer to students than a book can, for the observant lecturer knows when an additional illustration is helpful and he employs demonstrations and uses other audio-visual aids as the need arises. Listening to a good lecture need not be a passive process. If the students have been prepared adequately for the lecture by reading assignments and by preliminary discussion of key questions, there may be a great deal of mental activity during the lecture, especially when it is organized in terms of a series of challenging questions. The tendency today is to modify the lecture procedure so that it allows for questions by the students

on points that are not clear and for student-teacher discussion when necessary.

While a lecture may be a useful procedure for dealing with mature students, most teachers see little place for it in secondary schools and defend its use in colleges and higher institutions only when it is regarded as one of many teaching procedures to be used as the needs of the student, the subject matter, and the teacher dictate, and not as the basic method of teaching.

A distinction should be made between the use of the lecture method and the many situations in which the teacher has occasion to tell the pupils many facts or to present different points of view. Oral presentation is an important part of the teacher's work, but to characterize it as a lecture procedure belittles the significance and dignity of the lecture and is apt to rob the telling of its most vital element—the informal personal touch. (See LECTURE-DEMONSTRATION METHOD.)

T.M.R.

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LEGAL EDUCATION. Law is a public profession and carries public responsibilities. A large percentage of our public officials are lawyers, and most of our legislation is in the hands of lawyers. The interest which the State has shown in legal education from the earliest days of American history is justified by the predominant rôle lawyers play in the administration of justice and in our political life.

Public conceptions of the law and of the rôle of lawyers in society have exerted great influence on legal education. Owing, in part, to the prejudice of the original New England colonists against the English common law and its lawyers, there was no conception of the necessity for a rigorous university training in the law. Legal education in the United States followed a different course from that found either in England or on the Continent, and the English difference between the barrister and the solicitor gave way here to the development of a general law practitioner, the "attorney and counsellor-at-law."

Legal Instruction. By and large, there

are two types of legal training, one exemplified by English practice, where legal training is almost entirely in the hands of practicing lawyers and judges, in the Inns of Court; and the other the Continental method of using law faculties connected with established universities. The United States has departed from the English method but has not quite approached the Continental scheme. Since 1910 there has been a shift in American legal education from legal training in the law office to legal education in the law school. The earliest American lawyers were trained in the offices of practicing attorneys, either through lectures by successful attorneys, or by "reading" (generally of Blackstone's *Commentaries*). This method of private and practically unguided reading, coupled with practical experience as a clerk to an attorney, was the prevailing method of legal education until very recently, when the university law school came into its own as the predominant form of legal education. Today there are slightly less than 200 American law schools, and only a few states lack one.

Educational Requirements. Before the Civil War, educational requirements and "bar examinations" for admission to legal practice were not common. But after the Civil War, newer tendencies exhibited themselves, such as entrance requirements, better instructional techniques and courses, and written examinations. The last period of development, since approximately 1890, has encompassed insistence upon pre-law training and the raising of standards both for the student body and the law schools.

Pedagogical Methods. Originally, lectures and text readings constituted the basic methods of teaching in law schools. With Prof. C. C. Langdell of Harvard Law School, there developed in 1870 an entirely new and indigenous technique of law pedagogy, the case method, which since has been universally adopted in the United States. The theory of the case method operates through the collation of selected cases in terms of some significant categories, arranged historically and systematically. As developed by Langdell's student, Prof. Ames, the method required free discussion among members of the class, and between class members and the teacher. The latest pedagogical developments in legal education have grown out of disagreement with

the original assumption of the case method that all the law worth knowing was available in the "law books." Modern law casebooks, still the basic instrument of law school teachers, now include as much as fifty per cent of other than case material, such as statutes; sociological, historical, and economic data; administrative opinions and rulings; and textual notes and comments.

Improvement of Legal Education. From a comparatively early date organized attempts were made to improve the quality of legal education. In 1893 the American Bar Association set up a section on Legal Education, and in 1900 there was formed the Association of American Law Schools which has exercised a great moral influence on the course of law teaching. In 1921 the American Bar Association set up a system of "approved law schools" and of pre-legal educational requirements. Generally, these standards prescribe 2 years of pre-legal training, 3 years of full-time law study or a longer period of part-time study, an adequate law library, at least three full-time teachers, a non-commercially operated school, and the passing of a bar examination, in addition to law school graduation, for admission to the practice of law. The American Bar Association has constantly sought to modify statutes and judicial rules governing the preparation and admission of lawyers so as to approximate these standards, which have had great influence. In 1931 there was organized the National Conference of Bar Examiners.

Present Problems. Among the present-day difficulties in legal education is the lack of real professional uniformity among law schools as to courses, requirements, and methods. Some schools operate in terms of a curriculum designed to meet professional and social objectives; others, however, seek only to meet the minimum requirements of state bar examinations. Another frequent charge is the lack of a "practical" approach, that law schools are antiquated and fail to provide adequate training in statutory construction, bill-drafting, and legislation; in criminal law, procedural law, or the law of the local state. Certain devices have been designed to meet these objections; moot-courts where law students may approximate real court practice in preparing and arguing cases, legal-aid clinics where they may participate in actual profes-

sional problems in the field, and the organization of institutes for the advanced and practical legal training of practicing lawyers. These institutes have been variously sponsored by schools, alumni groups, or bar associations, and generally operate either through providing single lectures by recognized experts or by means of classes resembling university courses. The most recent complaint against modern legal education is that it is too "legalistic" and fails to adjust its curriculum to the rapidly changing social scene into which lawyers are graduated. Some attempts to meet this objection have been made on the undergraduate law level by the new type of case-book already described; on the graduate level, where instruction is designed principally for the training of teachers and research students, the newer methods approximate the French model of teaching economics and public affairs as well as "law." Other recent tendencies are the recognition that pre-law training should be non-vocational, and should be increased in amount and quality; and the growing severity of bar-examinations, whereby less than fifty per cent of the applicants on a national level are passed.

The Law School. Certain other less obvious aspects of legal education deserve mention. The modern law school revolves about its library, with thousands of volumes of law, government, history, sociology, economics, engineering, medicine, and psychology; the library plays an important role in the education of modern lawyers. Another important aspect is the "Law Review", a professional journal issued by many law schools, generally under the editorship of a board of students chosen for outstanding ability. The Review normally comprises two parts, articles by law teachers, judges and practicing attorneys; and a section prepared by the student board embracing current judicial decisions, statutory developments, and critical analyses of major legal problems. The Review serves a two-fold purpose, the training on a high level of a selected group of superior students, and the current education of its reading public—the bench and bar of the country.

H.N.R.

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LEGISLATION—See EDUCATIONAL LAW AND LEGISLATION.

LEGISLATIVE CONTROL OF CURRICULUM. Since education is a state function, the power of the state to establish educational policies is, apart from constitutional limitations, for all practical purposes plenary and unlimited (See EDUCATIONAL LAW AND LEGISLATION). This general power applies with equal force to control of policy inherent in establishing the school's curriculum. However, this authority of the state to determine the content of instruction is only one aspect of the problem; there is also the right of parents (*q.v.*) and the right of the teacher (See TEACHER'S LEGAL STATUS).

There is a wide variety of legislative and administrative practices, and a great disparity in emphasis on curriculum requirements exists among the various states. In general, three methods of control are available. One is through the legislative delegation of power to state-wide school authorities to control state courses of study and to determine the subjects and units of study which will be required for graduation from approved and accredited schools.

The second method involves direct statutory prescriptions by the Legislature. Dramatic instances of this type of control are the Tennessee evolution trial, where a teacher was convicted for violation of a state statute barring the teaching of evolution, the court upholding the constitutionality of the statute [*Scopes v. State*, 152 Tenn. 424, 289 S.W. 363, (1925)]; and statutory prescriptions for military training, which have been upheld as valid [*Hamilton v. Regents of University of California*, 293 U.S. 245 (1934)].

There are many hundreds such statutory requirements in the country, generally more common on the elementary than on the secondary level. An early study by Flanders in 1923 disclosed 926 prescriptions covering a wide variety of categories: nationalism (flag displays, government, constitution and history holidays); health and prohibition (accident prevention, stimulants, physiology and hygiene); practical and cultural subjects (agriculture, music, industrial arts, cotton-grad-

ing); humaneness to animals and birds; "fundamental" subjects (arithmetic, English, geography, penmanship, reading, spelling); and religious and ethical subjects (Bible-reading, manners and morals). At least three-quarters of the states have prescriptions for the teaching of the "fundamental subjects", and all 48 states require instruction in the nature of alcoholic drinks. Some statutes even prescribe the method of pedagogy (by "oral and black-board instruction"), and others go so far as to set the precise time of day when the prescribed instruction is to be given.

Legislative prescriptions of curriculum content frequently result from the actions of pressure groups, as witness the universal requirement of teaching the effect of alcohol, and the number of "monkey-instruction" bills. The evil that results from such legislative reflection of lobby pressures rather than of the considered judgment of educational experts can be seen in the California history of 70 years up to 1921, where 53 subjects were written into the elementary curriculum, 22 of which were later dropped.

A third method of controlling curriculum content is directly through the purse-strings, particularly by means of the device of state-aid or special financial aid to encourage authorized, but not required, subject matter. Sometimes the Legislature merely authorizes the instruction of certain subjects; other times it encourages development therein by paying part or all of the attendant costs. (See CURRICULUM.) H.N.R.

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LEISURE, EDUCATION FOR — See RECREATION.

LENGTH OF SCHOOL YEAR — See SCHOOL YEAR, LENGTH OF.

LESSON PLAN — See DAILY LESSON PLAN.

LIABILITY. Liability is a legal determination that one person must reimburse another for damages caused by the first person's improper activities. In terms of schools, generally there are two forms of liability, (1) contractual, and (2) tortious.

Contractual liability arises when a properly constituted judicial tribunal rules that there has been a breach of a contract, as a result of which the party at fault must make amends to the injured party. No contractual liability can take place unless there is a valid contract. There are two aspects of school contracts, one deriving from the general law of contracts, and the other from the peculiar nature of a school board as a contracting party. Certain fundamental rules of contract law condition all school contracts. A contract is an agreement between at least two people, enforceable by the law, wherein at least one party promises to do or to refrain from doing certain things and the other party in turn conveys something of value in exchange for the promise. There must be a "meeting of minds" as it is called, on the subject matter of the contractual obligation; by and large this can be achieved when the proposition or offer of one party is accepted by the other. And the promise of the one side must be met by what the law calls a valuable "consideration" or exchange by the other. Purely one-sided commitments do not achieve the status of legally enforceable contractual obligations. Furthermore, no legally enforceable contract may contemplate an unlawful object. This latter general principle of contract law ultimately may prove of great protective force for teachers whose school boards seek to evade the policy of tenure laws by requiring teachers to sign undated resignations at the time of accepting contracts which might mature into tenure status.

In addition to the general principles of contract law which govern school contracts, other restrictions grow out of the peculiar nature of school boards. A board of education is a creature of statute (see EDUCATIONAL CORPORATION) and consequently cannot claim any inherent rights to enter into contracts. The board's rights to contract must be traced to statute either directly or im-

LIABILITY

pliedly. Not only must the object or content of the contract be justified by statutory authorization, but the form of contracting, the method of award, and other procedural aspects of the contract must find their authority in the statutes. Consequently, it is a universal rule of law that school contracts entered into in excess of school board authority are unenforceable. Contracts beyond the scope of authority are known as *ultra vires*, and grant the other party no legal rights under the contract. Where the contract is not *ultra vires* but merely void for failure to obey statutory standards, in some unusual instances a contractor who has furnished goods or services the benefit of which has been retained by the school board may recover the reasonable value of such goods or services. All who deal with school corporations are presumed to act with knowledge of the school board's limited powers. All contracts by school authorities have read into them the statutory and constitutional limitations on such bodies. School board bylaws are frequently implied parts of school contracts. Besides the negative limitation of failure to find statutory authorization to engage in certain types of contract, school boards are subject to the positive limitation of compliance with any specific statutory procedures or requirements adopted by the Legislature. This affirmative type of limitation may include, to list a few examples, a requirement of a written contract, a requirement for competitive bidding upon public advertisement and letting, a direction that all school contracts of a specified type must require a majority vote of the entire board membership and not merely a majority of a quorum at any meeting, or a mandate that certain types of contracts may be awarded only at specially called board meetings. Unless otherwise specifically provided by law, contracts may be made only by the school board acting *as a board*, and not by a building committee, the board president, or the superintendent.

Where a school board contract has been entered into lawfully, the school board is obligated to the performance of all of its contractual undertakings; for failure to perform them it may be subjected to liability, or judgments for money damages payable out of tax funds. With rare exceptions (one of which may be impossibility of performance because of governmental action), the occur-

rence of events subsequent to the making of the contract will not relieve a contracting party from the performance of his obligations under the contract.

Tortious liability. A tort is a civil wrong not involving a contract. In most school cases it involves injuries caused by negligence (*q.v.*). There are but few cases in the law where absolute liability exists, that is, where liability arises from the mere occurrence of an injury. In most instances, liability is a direct function of negligence. Where negligence exists, and no legal defenses are available (See NEGLIGENCE), there are three interests which may be held liable in a school accident: (a) *The School Board*. The almost universal rule of American law exempts a board of education or school district from any corporate liability either for its own negligence or for the negligence of any of its employees. With certain minor exceptions, this basic rule of governmental immunity of school districts is applicable in forty-five states in this country. The principal exceptions are California, which permits school boards to be liable on the same basis as private corporations; Washington, which follows the California rule except for accidents in connection with physical or manual training; and New York, which in effect holds school boards liable for all injuries except those caused through the negligence of teachers. There is a slowly growing trend toward statutes abrogating the nonliability rule, and subjecting the school board to liability for negligently caused injuries; (b) *The Employee*. Except in some instances, all teachers, principals, superintendents, maintenance, clerical, and administrative employees are always personally liable for their own negligence, subject to certain legal defenses (See NEGLIGENCE). They gain no exemption from liability for their own negligence because of the immunity of their employers; (c) *The School Trustee*. With exceptions so rare as to make the matter of little moment, no personal liability attaches to school board members in the performance of their official duties requiring the exercise of discretion and judgment.

H.N.R.

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LIBERAL ARTS COLLEGE

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LIBERAL ARTS COLLEGE. In recent years, the liberal arts college has been subjected to severe criticism. Its eclectic nature has been ascribed to lack of a philosophy of education, and its inclusion of vocational and technical courses has been decried both by professional schools and by the proponents of education for culture. The lengthened period of training for all professions has led to a demand for curtailment of the liberal arts college.

The college of our day is not a common school—a school for all. It is designed to help intellectually able young people find themselves and prepare themselves to live a richer and a deeper life.

And yet the college, in achieving its basic aim, has served secondary aims: It has given the bases for professional education; it has maintained a diversified curriculum to serve all legitimate interests and to contribute toward individual self-realization; it has stressed habits of work and attitudes which

make for success in adjustment to life. The leading schools of medicine, law, engineering, and business have made college graduation a requirement for admission and have asked the college to focus its effort on liberal rather than on technical studies, on a broad rather than on a specialized curriculum. The college maintains that the best preparation for making a living is to learn to live, that the vital educational question is not what one can do with the college subjects he learns but rather what they can do to him in preparing him for leadership in a democratic society. On this philosophy the liberal arts college will stand or fall.

History. The earliest colleges—Harvard, 1636; William and Mary, 1693; Yale, 1701; Princeton, 1746; King's College (later Columbia), 1754; and Dartmouth, 1769—were established to train for the ministry. Later the curricula included law, teaching, and medicine; and gradually, almost incidentally, the college purpose became associated with the other learned professions and with civil life.

Growth of Enrollment. After 1900 the college enrollment experienced a growth unprecedented in the history of education. This is summarized in the following table.

Table 1
Student Enrollment in Higher Education*

Year	Population		Student Enrollment in Higher Education	Per Cent That Student Enrollment Is of the General Population	
	(Total)	(Ages 18-21)		(Total Pop.)	(Ages 18-21)
1900	75,994,575	5,930,765	237,592	0.31	4.01
1920	105,710,620	7,343,794	597,880	0.57	8.14
1930	122,775,046	8,899,254	1,100,737	0.90	12.37
1938	130,215,000	9,679,000	1,350,905	1.04	13.96

*Biennial Survey of Education in the United States, *Statistics of Higher Education, 1937-38*, Bulletin 1940. No. 2, Ch. IV, Federal Security Agency, United States Office of Education.

From the above table, the following conclusions may be drawn:

1. In 1900 fewer than one-third of 1 per cent of the total population were enrolled in college; in 1938 more than 1 per cent were so enrolled.
2. In 1900 a little more than 4 per cent of persons 18 to 21 years of age were enrolled in college; in 1938 nearly 14 per cent of persons of these ages were so enrolled.
3. Increase in college enrollments during the

period from 1900 to 1938 was 468 per cent, while increase in the total population was only 71 per cent, and increase in population of those aged 18 to 21 years was only 63 per cent.

4. In 1900 there was one college student to every 24.9 persons aged 18 to 21 years; in 1938 the ratio was one to 7.2.

Among the causes of this growth in student enrollment should be included the imperative need for trained public personnel in a demo-

LIBERAL ARTS COLLEGE

cracy; the increasing application of the lessons of science to commerce and industry; the secularization of education; the aristocracy of learning associated with the quest for economic security; local pride and the bounty of those who accumulated large for-

tunes; the belief that democracy should assure equality of opportunity to all of proved worth.

The number of colleges in the United States and the source of their support and control are summarized in Table 2:

Table 2
Colleges in the United States, Their Number and Their Control*

Type of Institution	Publicly Supported or Controlled	Privately Supported or Controlled	Denominational Control**		Totals
			Protestant	Roman Catholic	
College or University	110	182	253	145	690
Junior College	235	90	108	33	466
Negro Institutions					
College or University	19	6	38	1	64
Junior College ...	4	2	17	0	23

*Classification and distribution follow from table entitled "Control of Higher Education," *Educational Directory, 1941-42, Part III, Colleges and Universities*, Federal Security Agency, United States Office of Education, p. 7.

**One college, in New York, under Jewish control, was not included in the government's summary.

Overlapping Other Institutions. Because the college is intermediate between the secondary school and the university, much that the college teaches is found naturally in curricula of the high school and the university. Courses of similar grade in foreign languages, introductory science, elementary mathematics, and English are found in both the college and the secondary school. Frequently, courses in the upper college classes compare favorably with similar university studies for the Master's degree. These duplications, needless and confusing though many of them are, were introduced to assure individual students the opportunity to pursue progressive studies in keeping with their abilities and changing interests.

Student Elimination from the College.

Out of every 100 students admitted to the secondary school in the United States, only 55 are graduated, only 17 enter college, and only 8 receive the college degree (J. H. McNeely, "College Student Mortality," *U. S. Office of Education Bulletin*, 11, 1937). The acuteness of the misfortune lies not in the number eliminated but rather in the significant number of students of proved ability who are denied an opportunity for higher education because of economic disability.

The most common cause of elimination is lack of ability or lack of preparation for college work. Far too many students come to

college with reading disabilities, lack of adequate study habits, disinterest in the world of books, or limited intellectual capacity. To these causes we must add changes in interests, lack of guidance in secondary schools or colleges, personal maladjustments, and ill health. These causes of academic elimination are not discrete; often two or more operate toward the same end.

Many corrective measures have been devised. A measure of student guidance is assured through cooperation between the college and the secondary school, especially where the college knows which secondary schools its students come from. Orientation programs from two days to a semester are given to freshmen. Special groups are organized of those who need guidance in the technique of study or remedial exercises in reading. Homogeneous grouping furthers adjustment. Systematic student guidance or personnel work reveals many students who are in danger of being overwhelmed owing to economic pressures or because of personal maladjustment. (See **ELIMINATION**.)

How Students Are Admitted. Admission to the college, in the main, is in terms of achievement in preparatory studies. The pattern of requirements is not too fixed, but the applicant is expected usually to have completed creditably:

LIBERAL ARTS COLLEGE

4 years of study in English.....	3 credits
2 or 3 years of study in a foreign language	2 or 3 credits
2 years of study in elementary mathematics	2 credits
1 year of study in social science...	1 credit
1 year of study in physical science..	1 credit

These make a total prescription of 9 or 10 credits. With these the pupils must offer additional credits to make a total of 15 or 16. He is free to continue the above subjects or to choose from almost any of those offered in accredited secondary schools. The number of applicants for admission determines whether a quality standard is added. Other factors that determine admission are scholastic aptitude tests, personality ratings, and geographic distribution of the applicants.

A recent study of applicants who were admitted to college solely on the recommendation of thirty selected secondary schools reveals that no set subjects need be taken to assure success in college (See EIGHT YEAR STUDY.). Good habits of work and a command of English seem to be the basic requisites. All of the thirty secondary schools taught—each in its own way—mathematics, English, foreign languages, social studies, sciences, and arts. True, in some of the schools mathematics and science were interrelated, while in others they remained separate subjects; in some schools, students were taught general language before the foreign language while in others, the students proceeded directly to foreign languages. In the last analysis, the subject matter that is foundational in prescribed college studies was the backbone of the secondary school curriculum. The question is one of method rather than of content. The most reliable single predictive agent of success in college is still the cumulative academic record in the secondary school.

Individualization of Education. With the rapid growth of college enrollments and the increasing scope of knowledge, two potential dangers appeared: (a) mass education with its neglect of the individual and (b) a widened channel of knowledge with a discernible shallowness.

In order to individualize instruction, supplementary teaching devices were adopted. Among these are the tutorial system, associated with Harvard and Princeton; seminar or workshop courses; reading periods; field work; comprehensive examinations based on

independent reading by the student; honors courses, as evolved first at Swarthmore; supervision of the elective program, which aims to give each student a proper degree of concentration in a field of knowledge as well as a proper distribution of studies.

To guard against an overwide curriculum with its accompanying shallowness, survey courses were evolved in the humanities, in the social sciences, and in the physical sciences. With these overviews of large areas of knowledge, the student is deemed reasonably well prepared for that intensive study which will satisfy his interests or lay the foundation for his later professional work.

To make its curriculum an instrument for developing a disciplined mind, the college has renewed its emphasis on method as well as on mastery of subject matter. Each of the important subjects is expected to acquaint the student with its characteristic method of thinking. The Hutchins plan as carried out at St. John's College is probably an extreme example of the revived emphasis on discipline.

Faculty and Student Participation. The general tendency in college administration is to repose in the faculties the responsibility for academic standards. The traditions of each institution determine the extent of faculty participation in administration procedures. Student self-government is encouraged so that the burden of student control falls on the students. The governing boards control fiscal policies and salaries. To the president is assigned the affirmative responsibility of maintaining and promoting the total educational program of the college. (See BLACK MOUNTAIN COLLEGE PLAN; CHICAGO PLAN; COLLEGE ENTRANCE REQUIREMENTS; COLLEGE FACULTY; COMPREHENSIVE EXAMINATIONS; MUNICIPAL COLLEGES AND UNIVERSITIES; PRECEPTORIAL METHOD; ROLLINS COLLEGE PROGRAM; STATE COLLEGES AND UNIVERSITIES; TUTORIAL INSTRUCTION.)

P.K.

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LIBRARIAN—See **LIBRARY PERSONNEL**.

LIBRARIES, COLLEGE. Just prior to 1931 the Carnegie Corporation of New York gave one million dollars to approximately eighty liberal arts college libraries for books and periodicals. Studies were made and recommendations presented as to suitable books for inclusion in college library collections. Higher standards for support and administration were set by regional accrediting agencies. In general, so much attention has been paid to the problems of personnel, support, and services in libraries at this level since that time that L. R. Wilson speaks of 1931 as the year of emergence of the college library.¹

Libraries in colleges serve at least three groups of people—their students, their faculties, their alumni, and occasionally the surrounding public. Students must not only be provided with reading and audio-visual materials necessary for their courses, but they must be encouraged and helped to read widely and wisely for personal growth and pleasure. Colleges provide this latter service by means of attractive non-curricular reading rooms in the library (frequently called "browsing room"), by deposits of recent and interesting books in dormitories and fraternity houses, by sponsoring book auctions, by giving awards to students for excellent personal

libraries. Some colleges, aware of the large number of their students who cannot read at college level, offer personal or class reading guidance in the selection of suitable reading material and in the understanding of what is read. The introduction of honors or reading courses in many colleges has increased both curricular and non-curricular reading.

Students in most colleges are given some instruction in the use of the library. The amount varies from a lesson or two to a course which extends over a quarter or semester. Graduate schools frequently offer courses in the technique of library research as a prerequisite to graduate study.

Faculties must have not only adequate reference materials for their students, but current literature in their fields and materials for research.

Many college libraries provide all their graduates with annotated reading lists of timely books, and, when proximity permits, with the books themselves.

The planning of college library buildings follows the current trend towards the functional. Generally speaking there is a tendency to break up one or two large reading rooms into several small ones, though even this is dependent on the number of staff members available. Some new college library buildings provide open air reading rooms; typing rooms; and rooms in which to use microfilm, phonographs, and radio. Some college libraries are now providing for the accommodation of as many as 40 per cent of their student body at one time, instead of 10 per cent which was formerly thought to be sufficient.

The administration of college libraries is usually vested in the librarian, who is directly responsible to the president of the college. There is frequently a faculty library committee whose function is usually advisory. Occasionally some members of the board of trustees of the college form an advisory library committee.²

Income for library purposes generally comes from three sources—an appropriation from the annual income of the college, student library fees, and endowments made especially for the library.

Statistics of expenditure for libraries by a group of 58 colleges of less than one thousand undergraduate students showed that in

1940-41³ the median amount per student spent for library materials and service was \$22.39. This was 4.7 per cent of the educational expenditure for the college. This was a slightly better showing than was made by a group of 53 colleges and universities which had an enrollment of more than one thousand undergraduates. Widespread investigations indicate that the library budget should be based not on student enrollment, but on a study of the actual cost of adequate library service in a particular institution. (See LIBRARIES, UNIVERSITY AND RESEARCH.) E.S.

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LIBRARIES FOR THE BLIND. The adult blind of the United States are provided with books and magazines in Braille and Moontype (See TOUCH READING). and with "talking books"—records and phonographs—by the Federal government acting through the Library of Congress. A designated public library in each of twenty-seven districts serves as the local distributing agency under the supervision of the Library of Congress, and receives financial aid for the administration of this service. In addition to the \$350,000 which the government now allows annually for books for the blind, free transportation of the materials is allowed. (See BLIND, EDUCATION OF THE) E.S.

LIBRARIES, NATIONAL. The Library of Congress is one of the great national libraries, built up by the government through purchases, gifts, exchanges, and the deposit of two copies of every book copyrighted in the United States. It has numerous special collections, such as the one on music which consists of books about music and musicians, and sheet music. Its collections of maps; manuscripts; public documents, both of foreign countries and of the United States; newspapers; and Americana are especially important. One of the earliest purchases of the Library of Congress was the library of Thomas Jefferson. A recent one, in 1930, was

the Vollbehr collection of incunabula. Possibly the largest group of books on aeronautics in the world is in the Library of Congress. The total number of books and pamphlets in the Library is approximately 6,000,000. This does not include manuscripts, sheet music, maps, or charts, of which there are several millions more.

Scholars everywhere make use of the collection by consulting materials at the Library or from a distance, through inter-library loans of books, films, or photostatic copies of needed material. The Library of Congress also aids research workers by issuing bibliographies of current material in special fields, and indexes to publications of various federal agencies.

The classification scheme for which it is responsible; its system of printing and distributing catalog cards; its union catalog which contains the cards for books in about 700 great libraries besides its own, including the highly specialized government libraries in Washington make it an invaluable technical and professional aid to other libraries as well as to scholars.

There are more than 150 government libraries in Washington. The Department of Agriculture, the Smithsonian Institute, the U. S. Geological Survey, the Office of Education (*q.v.*) are typical of the fields in which these libraries specialize.

The Office of Education Library contains approximately 275,000 volumes. The collection also includes courses of study; theses on education; and all possible resources to aid the staff of specialists in the Office of Education and teachers and school administrators throughout the country, by means of inter-library loans, and reference and bibliography service.

In 1936 the Congress appropriated funds for the establishment of a Library Service Division in the Office of Education for the purpose of forwarding library development in the United States. This was the first official evidence of leadership on the part of the Federal government in the promotion of nationwide library service. The Division has been assigned several functions, the first and chief of which is research. E.S.

LIBRARIES, PUBLIC. Public libraries may be defined as agencies which supply free

LIBRARIES, PUBLIC

library service to persons within their communities.

The extent to which people are receiving this service is steadily increasing, as is shown by the fact that in 1926 forty-three per cent of the population of the United States was without access to libraries, and in 1935 only thirty-seven per cent were in this group.¹ Later studies indicate steady improvement in many regions, but there are still more than 35,000,000 people who live in areas, chiefly rural, not supplied with reading materials by free public libraries. Since evidence gathered from many sources indicates that public libraries are the chief source of reading for the largest part of the American public, except for newspapers, these figures mean that just so many people do not read.

Local public libraries in cities and towns offer varied services to their patrons, depending on their size, location, and resources. Besides supplying books, magazines, and pamphlets many of them lend lantern slides; pictures, some with frames ready to hang on walls; phonograph records and sheet music; books in Braille and "Talking Books" for the blind. (See LIBRARIES FOR THE BLIND.)

Branch libraries exist in large numbers, and their work is supplemented by "stations"—collections of books deposited by the public library in schools, factories, and other places. Outlying districts not served by a nearby branch are reached by bookmobiles, or book trailers, which stop at scheduled times and places.

Business and technical departments or branches offer special materials and services to patrons who need them. Patients in hospitals are often served by large city libraries. Some libraries maintain rooms for the professional reading of teachers. A few have rooms devoted to books, magazines, pamphlets, and bulletins for parent education, in response to a constantly increasing demand. Clubs are often served by a staff member who does little else. In some large cities, libraries provide special service for public and parochial schools and colleges in the form of special loans for a stated period.

Work with the foreign-born in many towns and cities has been an important part of library service, requiring a skilfully selected staff as well as a carefully chosen collection of books. Since 1933 much of this work has been

with refugees, many of whom are well educated and need a different type of service from most immigrants who formerly made up the group of foreign-born.

Readers' Advisory Service, as a special service, is a recent development in libraries. It is now handled by one or more specially equipped members of the public library staff. Any reader who wishes may have advice and reading lists on any subject. People who wish to continue their education from any level, or who wish re-education for another kind of work, are given reading courses with as many conferences as they wish. Readers' advisers sponsor forums, classes, and lecture courses.

Public libraries have long given service of the highest quality to children; and more recently many of them are giving special attention to adolescents and young adults, by means of reading rooms, suitable collections, and a staff whose interests and training are in this field.

The above list of activities can be lengthened, but it suggests what adequate library service can become, with sufficient resources by way of staff and materials.

Rural areas, when they are supplied with library service at all, are reached in several ways. Many state libraries send travelling collections of books to towns, schools, or individuals having limited service or none. Forty-six states have library extension agencies whose chief function is to promote, organize, and supervise state-wide library service.¹

The county library, supported by county funds, functions well in some states, for example in California. The county plan pools existing library resources, permits trained service, and provides for wide distribution of materials in various ways.

Many counties, however, have populations and taxable properties which are inadequate to support libraries within themselves. Regional libraries, which combine the resources of several counties, are being encouraged and tried.

Support for public libraries differs from support for education in general in that it is not legally mandatory in most states, but merely permissive. This means that there are at present only a few states which give financial support to public libraries—Michigan, New York, several New England states, and a

few others.² The local unit—city, township, county—is financially responsible in most cases for its own library service.

The per capita amount spent by the total population for public libraries in 1934 varied from \$1.08 in Massachusetts to \$.02 in Mississippi and Arkansas.² The per capita amount in terms of population served by libraries varied slightly less—from \$1.08 in Massachusetts to \$.11 in Arkansas and \$.08 in Mississippi. The average per capita expenditure was \$.37. State and national library association work steadily for equalization of library opportunities, which cannot be attained without state or federal aid to local units.

The administration of public libraries outside of cities follows the same pattern of administration—a county or regional board chosen by the unit which supports the library. The state library agency, whether it is a commission, a library department, or a state library whose staff is responsible for library extension, is advisory in its relationship to public libraries, rather than administrative.

The administration of public libraries in most cities of 30,000 or above is in the hands of library boards, members of which are sometimes elected, sometimes appointed. A few cities have libraries administered by boards of education; and a few city libraries are controlled directly by the city council, commission, or city manager.³ (See LIBRARY PERSONNEL.) E.S

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LIBRARIES, SCHOOL. The function of a school library is to contribute to the fulfillment of the educational aim of the school. It does this by selecting, collecting, organizing, and distributing materials of all kinds for use in class work; by individual and group guidance of pupils in reading for school purposes or personal recreation; by furnishing the facilities for teaching children how to find materials they need and how to evaluate and use these materials; by helping

children to become intelligent users and supporters of public libraries.

School libraries are organized in elementary, junior, and senior high schools, but those at the elementary level are generally the least developed in school systems. They vary in type from collections of books in classrooms, haphazardly selected and arranged, to well-equipped central library rooms which help in every possible way to carry out the program of the school.

The need for libraries in junior and senior high schools and the importance of their services are much more generally recognized. They exist in far greater number, are subject to more supervision by state and regional authorities, and are generally under the direction of better trained personnel.

Changes in educational philosophy have had considerable effect on school libraries, but the planning of the physical plant has not generally kept pace even with obvious additional services to be rendered. Few school library suites have sound-proof rooms for listening to music or other recorded material. In relatively few schools is there a room connecting with the library which can be used as a laboratory where a class can have immediate access to all library materials while a unit is under way. Few schools have small, attractive rooms for recreational reading, such as the "browsing rooms" in many college libraries. Space and flexibility should be the chief aims of school library planning.

In many schools the library is not allowed to make its greatest possible contribution to the students' educational development. Some schools still look upon the school library as only a convenient place for storing books and have failed to take advantage of the many ways in which a competent librarian can help students to use the library facilities with satisfaction and enjoyment. The full educational use of the school library is not achieved through short series of special lessons on the use of the card catalogue and references books. For the school library to be of greatest value it must be seen not as a separate room, but as a part of the school³; and the librarian must have the responsibilities and the opportunities of a member of the teaching staff.

The problem of the most satisfactory and economical administration, control, and sup-

port of the local school library has not as yet been solved. Three types exist—libraries supported and controlled entirely by the school district, those over which both the public library board and the school board exercise control because of joint support, and those which are public library branches in school buildings. Of 53 cities of 30,000 inhabitants or more, 39 have school libraries which are administered by the school board, and 14 which have a cooperative plan.¹ There are numerous valid arguments for each form of administration.

School libraries in secondary schools have grown up most often as separate units, and in many school systems continue to function in that way. Centralization of all school libraries within a school system, whether administered by the public library or the school board, is, however, economical and sound. A division or department of school libraries, administered by a director or supervisor, exists in 14 cities of 50,000 or over.¹

In 13 states there are state school library supervisors,¹ either connected with the state department of education, or on the staff of the state library. These positions carry varying responsibilities and duties which are promotional and advisory, not administrative.

Schools in rural areas have book service of one of three kinds, if they have any at all. This service is given either by county public libraries (See LIBRARIES, PUBLIC) or by travelling book collections sent from the state library agency; or by libraries established from county school funds in the headquarters of the county superintendents of schools, and administered by them, sometimes with aid of trained personnel, sometimes without.

State aid for school libraries is legally provided for in 17 states.¹ In 11 other states the legislation is permissive. The variation in amount is so great that it is obviously another symptom of the great need for equalizing educational opportunities for all children.

When school libraries are supported and administered by the school district alone, there are still numerous opportunities for cooperation with public libraries.² Some examples of cooperation are: the lending of large collections of books by the public library to classrooms for long periods of time; reserve shelves in the public library for use

in various school units; notice to the public library of future demands for books by the school librarian or teachers; cooperation in planning units by public librarian and school group, representation of the public library on school curriculum committees; cooperative bibliography making; visits of elementary or junior high school classes to the public library. (See also LIBRARIES, PUBLIC. For Personnel, see LIBRARY PERSONNEL.) E.S.

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LIBRARIES, UNIVERSITY AND RESEARCH. Opportunities for research are found in university libraries, as well as in many public and private collections throughout the country. Harvard University has probably the largest number of special collections, ranging in subject through classical literature; individual English, French, and German authors; drama; history of various countries and periods; fine arts; city planning; philosophy and religion; the social sciences and most branches of science. Other universities, such as Yale, Cornell, Columbia, Michigan, to mention only a few, have special collections for ten or more subjects.¹

Many college libraries have specialized in subjects of interest and importance, for example Amherst, which has a Wordsworth collection; and Colby, which has unusual material for research on Thomas Hardy and E. A. Robinson.

A few large public libraries, notably that of New York City, have valuable research collections. The basis of this library was the combination of three private libraries which had already acquired many rare and valuable items. It was also the recipient of large endowments at the time of its foundation.

There are special collections for research in the libraries of certain state historical societies, the American Antiquarian Society, and the Hispanic Society. The largest art museums have excellent collections in their

field. Numerous public utilities have built up extensive research libraries.

Private libraries have been built up, which contain highly specialized materials invaluable for research. The Henry E. Huntington Library at San Marino, California, specializes in materials on early English literature, Shakespeare, seventeenth and eighteenth century manuscripts, English drama, and Americana. The John Crerar Library in Chicago, established in 1894, contains materials on the theory and practical application of physics, chemistry, botany, ornithology, and other fields of science. It has a large collection of materials on transportation. Newberry Library, also in Chicago, contains more than half a million volumes chiefly in the fields of history, the classics, and literature of various countries. The Henry C. Folger Library in Washington, D. C. contains the finest collection of Shakespeare material in the United States. There are more than 40 first folios in the 20,000 volumes. It has also specialized in materials on Dryden and early English printing. John Pierpont Morgan collected English and American manuscripts, early printed books, and various other rare items of English and French medieval literature, to the extent of 25,000 volumes, valued at \$7,500,000. In 1923 this library was given to the city of New York by the son of its founder as an institution for research. (See LIBRARIES, COLLEGE; LIBRARIES, NATIONAL.) E.S.

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LIBRARY OF CONGRESS — See LIBRARIES, NATIONAL.

LIBRARY PERSONNEL. At the present time there are thirty library schools in the United States and two in Canada which have been accredited for training librarians by the American Library Association Board of Education for Librarianship.¹ Requirements for entrance and for obtaining degrees from these institutions vary. There is also some specialization in the kind of librarianship for which they prepare. Persons who have fulfilled the requirements of one of these training agencies are classified as "professional."

For the purposes of uniform statistics, the American Library Association has grouped and defined library personnel as follows: administrative office assistant, professional assistant, sub-professional assistant, clerical assistant, and others.²

Administrative office assistant applies to such positions as secretary to the librarian, or business manager. These persons need have no training in librarianship.

A professional assistant must have at least a bachelor's degree, and one year of professional library training, which may be included in the four years required for the bachelor's degree; or, education and experience of a kind which is considered by the librarian in charge equal to four years of college and five years of professional experience.

A subprofessional assistant should have some elementary training in library work.

A clerical assistant rating requires graduation from high school but no training in library work.

"Others" are those who do minor clerical or manual library work—pages, for example; but book menders and the custodial staff are not counted here.

There is a definite tendency towards certification of librarians in publicly supported libraries—municipal, county, and school. A recent survey shows some interesting trends.³ Eighteen states have some kind of legal certification for some type of public librarian. A few of them indicate requirements for county librarians only—a provision evidently written into the law establishing or permitting county libraries, which are a fairly recent development. Most of the provisions for certification were made since 1930.

In twelve states there is *voluntary* certification of librarians in public libraries. In most cases the certifying agency is the state library association, which has made detailed and specific requirements. This awareness on the part of the profession itself indicates that once the experimental stage is past, there should be a demand for legal certification.

More than half the states now require certificates for school and teacher librarians. Some of the statements about certification in-

LICENSING OF TEACHERS —LIGHTING, SCHOOL

clude regulations about the amount of time per pupil enrollment a librarian or teacher librarian shall be required to serve in the library. Some states make the same requirements for librarians as they do for teachers, plus approximately a year of library training, in a course of four years work toward a bachelor's degree.

School librarians are certified in two ways, either by legislation or in accordance with standards set up by the same state committee, or board, or other officials, who certify teachers according to approved standards. The trend is towards the latter procedure.⁴

Of school librarians in cities where school libraries are administered by the boards of education, ninety-eight per cent have the status of other faculty members,⁴ with eighty-eight per cent of them on the same salary schedule. In cities where school libraries are under the cooperative administration of the Board of Education and the Library Board, only twenty-five per cent of the school librarians have faculty status. E.S.

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LICENSING OF TEACHERS — See TEACHERS, CERTIFICATION OF.

LIFE GUIDANCE—Sec GUIDANCE.

LIGHTING, SCHOOL. Standards for schoolroom illumination are being revised continually with increased recognition of the detrimental effects of poor vision and ocular fatigue on the health of the child and on school progress. The American Standards Association in 1938 revised its standards adopted in 1932 as follows:

	1932 Minimum Standard (Intensity in foot candles)	1938 Proposed Standard
Classrooms, study halls, lecture rooms, and libraries	5	15
Offices	5	15
Sewing rooms, drafting rooms, art rooms, and rooms where fine detail work is to be done	8	25
Shops and laboratories	5	15
Gymnasiums	3	15
Auditoriums, cafeterias, and other rooms in which people congregate for an extended period, but not for study	2	6
Locker rooms, stairs, corridors, and toilets	1	4
Sight-saving rooms .....	..	30

Even the revised standards are challenged by many authorities as being much too low. It is an accepted principle that illumination should be sufficient for the most eye-straining task in the classroom.

Windows. A majority of classrooms receive their natural lighting through windows. The minimum natural lighting requirement is usually one square foot of window space to each five square feet of floor space. This proportion should be increased where exterior obstructions exist. Since one square foot of glass area at the top of the window is several times as effective as one square foot at the bottom, modern school buildings have the glass line of their windows as near the ceiling as possible. A commonly accepted rule is that the top of the window should be square and should extend to within six inches of the ceiling, and that the minimum distance from the top of the window to the floor should be equal to half the width of the room.

Color of Walls and Ceilings. The reflection and diffusion of light in the classroom also are important factors in classroom illumination. Ceilings and walls should be finished with colors of high light-reflecting values. Colors frequently recommended for walls are light buff or light green; ceilings should be white or near-white. All colors should be of dull finish to eliminate glare. The ceilings should reflect from 65 to 80 per cent of the light and the walls from 50 to 60 per cent.

Window shades should be translucent, preferably tan in color, and should be adjustable to admit the light from the upper part of the window.

Artificial lighting. Artificial lighting equipment is classified according to type of installation: direct, semi-direct, semi-indirect, and indirect. Direct lighting is provided by suspended lamp bulbs without reflectors; this type of fixture gives high concentration of light but poor diffusion and is generally considered unsatisfactory. Semi-direct lighting is usually provided by frosted glass globes, permitting a large percentage of the light to shine directly on the working plane and a small percentage to reflect from the ceiling. Semi-indirect lighting, usually obtained by use of opaque plastic or glass reflectors, throws the greater percentage of light on the ceiling, from which it is reflected to the working plane. Indirect lamps reflect light from the source to the ceiling, permitting no direct rays to fall on the working plane. Semi-indirect and indirect lamps are preferable because they considerably reduce glare, although they require greater intensity to give an equal foot candle of intensity on the working plane.

Fluorescent lighting gives promise of greatly improving lighting intensities without increasing wattage. L.E.M. and M.F.S.

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LINE AND STAFF ORGANIZATION OF ADMINISTRATION—See ADMINISTRATION, SCHOOL.

LINE GRAPH—See GRAPHIC METHODS.

LIP READING—See SPEECH READING.

LITERATURE—See CHILDREN'S LITERATURE; ENGLISH, TEACHING OF; READING, METHODS OF TEACHING.

LITERATURE, CHILDREN'S — See CHILDREN'S LITERATURE.

LOAD, TEACHING — See TEACHING LOAD.

LOAN FUNDS. Moneys reserved or used for lending constitute loan funds. Specific examples are loan funds for students and for teachers.

Institutions, agencies, organizations, and individuals set aside loan funds available with or without interest to students, the principal usually being paid back in installments. In contrast to scholarships and gifts, the principal at least must be returned. In 1942, to promote the interests of national defense, the federal government established a loan fund available at a set rate of interest to students in such special fields of preparation as chemistry and engineering.

Less common are loan funds for teachers. These funds may be used for such purposes as travel, additional schooling, living expenses, and emergency needs.

Where loan funds for teachers are not available, many teachers have been forced to borrow money from other sources, often at unduly high interest rates. The teachers' credit union has been proposed as a means of helping teachers to solve their financial problems.

A credit union for teachers is an independent and voluntary organization of teachers incorporated for the two-fold purpose of 1) providing loans for provident and productive purposes and (2) promoting thrift among its members.

The credit union movement dates back to the 1850's in Europe. The movement in the United States was quickened through the efforts of Edward Filene, a Boston merchant and philanthropist, who spent considerable money in an educational program which resulted in favorable legislation for cooperative credit unions.

There are more than 9,000 credit unions in the United States and a national organization known as the Credit Union National Association. Many of these local unions are for teachers and other employees of boards of education.

A group may organize under state or federal laws. In Illinois, credit unions formed under the state law are supervised by the auditor of public accounts, and those formed

LOCAL BOARD OF EDUCATION — LOYALTY OATHS

under federal statutes are supervised by the Farm Credit Administration.

The Governing body is usually a board of directors who appoint a treasurer and managing officer. Careful supervision is exercised through various local committees. The directors and officers are elected at the annual meeting, at which all persons holding shares of stock have voting privileges. At the annual meeting the credit committee is usually elected for the purpose of passing on all applications for loans. Under the federal law, loans up to \$100 may be made without further security than a promissory note signed by the borrower. C.A.D.Y.

Reference.

Write the *Farm Credit Administration, Washington, D. C.* for information on federal laws, and the state capitol for state laws.

LOCAL BOARD OF EDUCATION—

See BOARD OF EDUCATION, LOCAL.

LOG, CLASS—See DIARY, CLASS.

LOOK AND SAY METHOD (READING)—See READING, METHODS OF TEACHING.

LOYALTY OATHS. Legislatures or State Boards of Education in at least 24 states now require a loyalty oath of teachers. Although one such loyalty oath requirement existed as early as 1862, in Kentucky, the great impetus to this type of legislation came after World War I. Characteristic of oath laws after the last war were New York's Lusk Laws of 1921, later repealed in 1923 after a series of persecutions. Of the 24 states now having such a requirement of teachers, 13 have passed their provisions in the two years 1931 and 1935.

The oaths required by such laws take different forms. Some require the teacher to swear to support the Constitution of the United States and the state; others require him to swear that he will support the Constitution and that he will faithfully discharge the duties of a teacher; some require an oath to support and defend the Constitution; others require the constitutional pledge plus a requirement to teach love, respect, and allegiance to the flag, government, and American institutions; and still others include prescriptions intended to prevent the teaching of specific theories of government or eco-

nomics. One form of this later type of oath law existed in the District of Columbia, until repealed by Congress in 1937, whereby teachers were required to swear at the end of each salary period that they had not "taught or advocated" communism. Federal funds appropriated for educational purposes may not "be used to pay the salary or wages of any person who advocates, or who is a member of an organization that advocates, the overthrow of the United States by force or violence." (Federal Security Appropriation Act, 1943, §703.) This statute has been interpreted by the Comptroller General of the United States to require a sworn affidavit. (20 Comp. Gen. 925.) The Commissioner of Education, whose appropriation comes under the Federal Security Appropriation Act, has interpreted the Act to require the oath from all persons paid in whole or part out of Federal educational funds granted to land-grant colleges (*q.v.*) under the Bankhead-Jones Act; to Federal vocational education programs and vocational rehabilitation programs; war-production workers (defense) training programs; the National Youth Administration program; and the Engineering, Science, Management, and War Training Program (ESMWT).

Coverage of the various loyalty oath laws varies from state to state. All the laws apply to elementary and secondary school levels, 17 to public normal school, 15 to public colleges and universities, 9 to private and parochial schools, and 11 to colleges and universities. But just what constitutes a violation of the oath has not been judicially determined.

The arguments for and against loyalty oaths cover a wide range. Basically the proponents of the laws seek to protect the schools from subversive, disloyal, and unpatriotic doctrines and to insure the loyalty of the teaching body; the justification given for singling out the teacher among all public employees is that society must be especially careful to shield its youth from the inculcation of seditious doctrines. The opponents of loyalty laws argue that to require teachers alone of all public employees to swear to such oaths is unjust and unfair discrimination; furthermore, they argue, such oaths tend to break down the academic freedom which should be permitted the teaching profession

LUNCH HOUR ACTIVITIES

if it is to do its task most effectively. The attitude of professional educators towards loyalty oath laws was expressed in a resolution adopted at the July 1936 convention of the National Education Association, and reaffirmed again in June of 1937, condemning "special loyalty oath bills." (See ACADEMIC FREEDOM; TEACHERS' LEGAL STATUS.)

H.N.R.

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LUNCH HOUR ACTIVITIES. It has long been recognized that living and learning are but different names for the same process. One effect of the realization of the true nature of the learning process has been the re-examination of subject-matter curricula, methods of teaching, and student activities in the light of their relation to the life needs of growing personalities. A corollary to this effect has been a growing awareness of the educative potentialities of extraclass activities. Student clubs, student self-government, excursions, and community projects have taken their place as vital elements in the enlarging concept of life learning. However, one important part of the school day generally has not been allowed to assume the importance it deserves. It is strange that in an education seeking to achieve social competence, the schools have generally ignored the possibilities of social training inherent in what has been traditionally the most social of all activities—eating.

It is a rule rather than the exception that no teacher assignment is more disliked than the "lunch-room supervision." The fact that it is called "supervision" is indicative of the spirit in which it is undertaken. The duty is observed in a wide variety of ways, from the supervision by a confirmed disciplinarian armed with a severe manner, a stentorian voice, and a strong-armed "sanitation squad," who enforces silence and cleanliness, to the soft-hearted little lady with hardened eardrums who retires to a seat in the corner and corrects test papers.

Many schools, however, have made use of the lunch hour as a means of encouraging the good social habits associated with mealtime.

Tables are provided for groups of four, six, or eight to encourage the making of acquaintances. Sometimes teachers join these informal groups and act as host or hostess, or students take turns in acting as host or hostess. It has been found that the responsibility of enforcing habits of cleanliness, good order, and social cooperation can well be left to the students themselves through their own self-government organizations, such as the student council. In schools which have two or more lunch periods, sometimes no more than half an hour is allowed for each period. There is so little free time available after the students have eaten their lunch that it is difficult to plan lunch hour activities. If only one lunch period is provided in a school, that period is sometimes an hour or more in length and therefore adequate for both lunch and other activities.

The possibilities of social training are especially marked if the lunch period is long enough to allow for a half-hour or more of relaxation after lunch has been eaten. Student organized entertainment may be provided, announcements of significant student social events may be made, informal discussion groups may be formed, a community sing may be organized, a group interested in Spanish may practice everyday Spanish conversation or sing Spanish songs, etc. Some schools have special recreation rooms in which games are provided; chess, table-tennis, and checker tournaments are run by students; motion pictures are shown; and music is played for listening or for dancing. The scope of lunch hour activities is wide, and the potentialities of the lunch hour as an opportunity for exercise in positive social living and learning are great, especially if the students themselves undertake, through their elected councils, to organize the wide variety of socially and recreationally useful activities that can become a part of the lunch hour. Jacobson and Reavis give two reasons for student council activity in the program: (1) it presents a real problem which can be solved by pupils, and (2) it gives pupils some responsibility for the management of affairs which are closely related to the extracurriculum.

To accomplish these ends, the lunchroom must be made an attractive place; and time, facilities, and setting must work together to

LUTHERANS, EDUCATIONAL WORK OF

make the lunch period as helpful socially as it can be satisfying gastronomically.

According to one careful recent research the most common lunch hour activities in 356 schools are in order: games on the campus, loafing, resting, walking, and games in the building. A trend toward planned activities, however, has been gathering impetus in all sections of the country. J.E.G.

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LUTHERANS, EDUCATIONAL WORK OF. Since the days of Luther and his co-laborers, education has been one of the chief factors in the development of the Lutheran Church. While Luther's educational classics (*To the Christian Knighthood*, of 1520; *To the Mayors and Aldermen of All the Cities of Germany in Behalf of Schools*, of 1524; *Sermon on the Duty of Sending Children to School*, of 1530) have in mind Christian education in state schools, the principles enunciated by him have rightly been applied wherever Lutheran congregations have been established in the various countries of the world. The principles which have always been stressed by the leaders of the Lutheran Church have been chiefly those insisting upon proper indoctrination of the young before admitting them to adult membership and the right to partake of the Eucharist. In fact, a notable *dictum* of Luther: "Where the Word of God does not rule, I advise no man to place his child," has become a slogan in Lutheran education.

The Swedish Lutherans were the first settlers of this faith to establish themselves permanently in America. That was in 1638. As soon as Fort Christina had been built, the colonists not only provided a chapel for church services, but also made arrangements for the Christian instruction of their children, their specific demand being that "all persons, but especially the young, shall be instructed in the articles of their Christian faith." In 1692 a petition was sent to the mother country which requested, among other things, the shipment of "one hundred handbooks and

spiritual meditations, two hundred catechisms, and two hundred ABC books."

The same zeal for Christian education was shown by the Lutheran group which settled in New York, although the undertaking met with certain difficulties because the Dutch government placed obstacles in the way of maintaining a separate school. In Albany the same situation was found. But among the Palatinates of the Hudson Valley independent schools were established shortly after 1700, and there are records of a log schoolhouse that was built at West Camp in 1710. Further immigration and natural growth brought about the establishment of other congregations and schools in this section of New York State.

But the real beginning of Lutheran education on a large scale took place in Pennsylvania after the coming of Henry Melchior Muehlenberg, often called the patriarch of the Lutheran Church in America. Muehlenberg was indefatigable in establishing Christian schools, not only in Philadelphia, but also in other cities. He was not ashamed to teach school himself, although it meant instructing children of 17 years and more in their ABC's. In one of his letters he states: "One week I teach school in Philadelphia, the next in Providence, the third in New Hanover." As a result of Muehlenberg's labors, the Lutheran school system of Pennsylvania expanded until it included a large part of the state, with hundreds of parish schools in operation in the first decades of the 19th century. It was only with the rise of the public schools and the increasing interest in Sunday Schools that the parish school movement lost its strength. It should be noted, also, that the Salzburgers in Georgia founded Christian schools for their children, and that the Henkels in Virginia acted as missionaries, teachers, and printers of Lutheran school books for a number of decades, their influence extending into Tennessee, Ohio, and some other states.

But a new impetus was given to the establishment of Lutheran parish schools by the so-called Saxon and Franconian immigrations, the former being directed to Missouri, the latter to Michigan. We are told: "Only a few days after the arrival of the first division of the immigrant colony in St. Louis a school was opened. The same took place in the other

congregations, in Perry County. If it was not possible to appoint a regular teacher, it was self-evident that the pastor, together with his ministerial office, also assumed the office of teaching." This idea has always actuated the Synodical Conference of the Lutheran Church in America. It has steadfastly maintained the necessity of Christian parish schools and of other agencies which would adequately supply the needs of children and young people in the field of Christian education. For a number of decades other Lutheran bodies of the Middle West also maintained parish schools and conducted normal schools for the adequate training of teachers, but the number of such institutions has materially decreased. Their place has, in many cases, been taken by Sunday Schools, which are now found in the majority of the parishes, Saturday Schools, summer schools or vacation Bible schools, released-time classes, and similar agencies. Whatever agencies and institutions may be found in the individual Lutheran parish, the aim of the Church is to give to every child an indoctrination which will be adequate for adult membership. The final step toward the accomplishment of this aim is found in the confirmation classes, in which children (and adults) are prepared for full membership in the Church, and especially the right to partake of the Holy Communion. The Lutheran Catechism and the Bible are the chief textbooks in such classes, and the rite of confirmation is attended by a great deal of dignity.

Secondary and higher education in the Lutheran Church of America is taken care of in scores of junior colleges and full colleges, a number of normal schools, and more than a dozen theological seminaries, which maintain high standards. A consistent effort is being made to raise standards in keeping with the advancement made in the field of secular learning, without endangering the character of the institutions as agencies of the Church. (See PROTESTANT EDUCATION.) P.E.K.

LYCEE—See FRANCE, EDUCATION IN.

LYING. Lying generally implies an individual's misrepresentation of facts or circumstances with the intention of deceiving others. It is one of the most frequent behavior prob-

lems among children and adolescents, and is somewhat more common among boys. Much of the lying of small children should not be classified as such, since it results primarily from their inability to make a clear distinction between fact and fancy. Usually, by the eighth year this confusion of truth and imagination diminishes, and it has practically disappeared by about the age of twelve.

Children find it difficult to understand that truth-telling standards are relative, and that what is regarded as a lie in one situation is considered tact in another. The inconsistent behavior of parents who punish children for lying, yet indulge in it themselves, makes the situation even more incomprehensible to the child. Other reasons for children's lies are the desire to escape punishment, to shield friends, to enhance prestige or to get attention; and, as a defense mechanism, to conceal feelings of inferiority.

In general, no anxiety need be felt over the so-called lies of small children. They might be reminded that some of their tales are the product of their imagination and did not really happen. Parental example is perhaps the most powerful influence in guiding the truth-telling standards of children. Punishment should not be so severe that the prospect of it frightens the child into lying. Opportunities to succeed in things that are within the range of their abilities will alleviate the necessity of lying to enhance the ego. Adolescents especially resent interference and often will lie to adults who seek to pry into their affairs.

Pathological lying occurs mostly among adolescents and adults and is frequently associated with sex delinquencies. Thus, girls will sometimes bring criminal charges against innocent men and then later admit in court that their accusations are fictitious. Pathological lying is usually associated with psychopathic or unstable personalities, and may or may not be amenable to treatment. R.V.M.

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M

M. A.—See INTELLIGENCE QUOTIENT.

MACHINE SCORING OF TESTS—See MECHANICAL SCORING OF TESTS.

MAGAZINES, SCHOOL—See PUBLICATIONS, SCHOOL.

MALADJUSTMENT—See MENTAL HYGIENE.

MANN, HORACE (1796-1859). Horace Mann is perhaps best characterized as an educational statesman rather than an educational philosopher; as a popularizer of the best educational thinking and practice of the mid-nineteenth century rather than as an original contributor to this thinking and practice. He was a leader in the Common School Revival in New England, as were Henry Barnard (*q.v.*), James G. Carter, and others.

His salutary influence in developing active enthusiasm for democratic popular education in place of apathy toward it, was exerted chiefly during his term of office as Secretary of the Massachusetts Board of Education 1837-1849. When he undertook this heavy task, the public elementary schools of Massachusetts were inefficiently administered by autonomous district boards, taught by untrained teachers, and provided with an emaciated curriculum. The children of the rich shunned them; their needs were met differently, in a totally distinct private school structure. Mann's animating credo was that public schools must be made as good as any schools can be made.

Chief Lines of Work. Tireless speaking circuits throughout Massachusetts were made, often under difficult conditions. Twelve annual reports were prepared and widely circulated, some of them having since become indispensable reading for students of the history of American education. The *Common School Journal* was published to keep the people informed as to the educational renaissance Mann was trying to bring about in their state. Institutes for the in-service edu-

cation of teachers were developed.

One of the most important phases of Mann's total program was his struggle to secure public support for the founding of state institutions for the preparation of teachers—normal schools. It was a key point in his credo that better schools necessitated better teachers, and that the preparation of better teachers was a public function and responsibility. By 1840, three years after he had assumed Office as secretary, Massachusetts had founded three publicly supported state normal schools, the first in the United States.

Mann's European trip of 1843 included a study of the educational practices of six countries. His observations, especially as presented in his Seventh Annual Report, helped American readers better to understand, by comparison and contrast, their own educational theory and practice. He was especially impressed by the Prussian-Pestalozzian system, which Prussia had set up, following the crushing defeat by Napoleon in the first quarter of the century. One of Mann's biographers states that if what he reported a century ago now seems commonplace, it is so partly because he brought it to the attention of Americans.

Specific Avenues of Influence. Mann, through his varied activities, may be rightly considered an important influence in the long line of apostolic succession which has brought about an enrichment of the American school curriculum, especially the elementary school curriculum. He stressed the importance of health education. Through his influence on Lowell Mason, he contributed to the establishment of music in the elementary curriculum. He saw the value of a richer literature experience for young children than the schools of his time made available. He helped spread the Pestalozzian emphasis on a geography beginning with the elementary school child's own environment.

As to the perennial problem of the best pedagogical approach to reading, whether

synthetic or analytic, Mann was one of the voices crying in the wilderness. The alphabetic approach had held its own since the colonial period. He preached the wisdom of beginning with a more meaningful unit of reading experience—in his case it was the *word* approach. Although later developments in the psychology of reading have led to the *sentence* and the *story* approaches as well as the *word* approach, Mann's suggestion that reading be introduced through meaningful units is still regarded as the basis for methods of teaching children to read. P.R.V.C.

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MANUAL ARTS—See INDUSTRIAL ARTS EDUCATION.

MANUAL TRAINING—See INDUSTRIAL ARTS EDUCATION.

MANUSCRIPT WRITING—See HANDWRITING, TEACHING OF

MAPS, USE OF. The map is a plane surface representation, on a reduced scale, of the earth's surface or part of it, showing relative sizes and positions of geographical features. It is used generally and in such specialized fields, as geography, engineering, and military science; in navigation or astronomy it is referred to as a chart. The representation of globular surface configurations on a flat plane map causes distortion of scale, shape, area, and angle. To decrease distortion, orthomorphic map projections, showing land mass shapes truthfully as compared with their shapes on globes, and equal-area projections, giving any region on the map the same area as on a globe of the same scale, have been devised. Since it is impossible to represent truthfully both shape and area on one projection of a considerable area the map maker emphasizes one element while distorting in the least measure the other elements. To most practical geographers the truth of area is first and the truth of conformality next in desirability.

Few projections are truly perspective. *Perspective projections* involve placing a tangent plane against the globe or enveloping

it with a cylinder or a cone. A projection on the tangent element is then made of part of the grid system of the globe's parallels and meridians from either its center, as in the conic and gnomonic maps; a point on its surface, as in the stereographic maps; or a point external to its surface, as in orthographic maps.

In the *orthographic plane projection*, which represents a hemisphere, neither equal area nor conformality is obtained, the meridians and parallels being crowded toward the outer edges. It is used mainly in its oblique case for pictorial art purposes or for children in earliest stages of map study. The *stereographic tangent plane map* of the hemispheres, though partially conformal, is little used because of distorted areas near the edges resulting from the wider spacing of meridians and parallels there. The *globular projection*, arbitrarily spacing the lines equally, portrays suitably and simply the shapes and positions of land areas on a hemisphere. The *gnomonic type*, though little used for hemisphere maps because of marginal expansion and consequent distortion of both shape and area, is valuable when used in conjunction with Mercator's projection in plotting great circle air or sea routes.

The *Mercator projection of the world*, used for more than two and a half centuries, was designed to meet the difficulties of distortion involved in the central cylindrical and the equal-area cylindrical projections. The first type, projected from the center of a globe, yields a developed map with enormous expansion in high latitudes. The second elongates shapes in an east-west direction in high latitudes. In the Mercator map, the positions of the parallels are mathematically computed to result in a north-south expansion increasing at the same rate as the longitudinal expansion increases by projection. Though small areas are shown conformally, higher latitude exaggeration of area is, nevertheless, so great as to make it a misleading base map for showing industrial and other world distributions. For navigational purposes it has no rival since it alone shows all compass directions as straight lines.

The *conic projection*, supposing a cone tangent to the globe at a given standard parallel, is widely used, especially in mathematically derived or modified forms. The

MAPS, USE OF

cone, in theory, is unrolled or developed, revealing concentrically curved parallels and straight line meridians crossing parallels at right angles. It is relatively accurate for small areas of considerable longitudinal extent, such as Canada or Europe. For larger areas modified forms are used because of distortion due to distance from the tangent parallel. Among these, constructed on two standard parallels and yielding good shapes and equal—or nearly equal—area representation, the most useful are the *DeLisle*, the *Albers equal-area*, and the *Lambert conformal projections*. *Bonne's equal-area projection*, constructed on one standard parallel, gives good shapes for countries of limited longitudinal extent, such as France or Madagascar. The *polyconic projection*, based theoretically on a series of cones tangent at equidistant parallels, was developed by the United States Coast and Geodetic Survey and is used for the International Map of the World. Yielding good shapes and almost equal-area representation, it is one of the best for both small areas and those having considerable latitudinal extent, such as a map of North and South America.

In the *azimuthal*, or *zenithal projection* a plane is laid tangent to any selected center of the globe, usually one of the poles. The *Lambert azimuthal equal-area map* is useful for polar areas, continent maps, and hemisphere maps—all showing true compass directions from the center of the map.

The *non-perspective* or *arbitrary types* are projections in name only. These are mainly oval shaped, equal-area world maps with elliptical meridians converging at the poles. The *Mollweide homolographic projection* of the earth is an ellipse with the equatorial axis twice as long as the mid-meridian. In the *interrupted homolographic map* each continent has a separate mid-meridian thereby securing good shapes generally and decreasing distortion in high latitudes. Other oval projections, such as the *Aitoff* and *Eckert maps*, improve the shapes by curving the parallels or decreasing the convergence of the meridians. The *Sanson-Flamsteed sinusoidal equal-area projection*, whose meridians are sinusoids, is one of the best projections for hemispherical maps and for maps of equatorial regions, South America, Africa, and Australia. The *Goode interrupted homologous equal-area projection*, being a combination

of sinusoidal from the equator to latitude 40 degrees north and south, and homolographic beyond these points, is probably the most useful and truthful map for representing world areal distribution of climatic, economic, and other elements.

Among future mapping projects are the completion of the International Map of the World by the principal nations and the much needed mapping of various world wide resources and activities.

For clarity, maps employ scales, relief schemes, and other graphic devices. The scale may be a graduated line, an expressed ratio between map lengths and earth lengths, or an inch-to-mile scale. Groups of contour lines, each connecting all points on the surface having the same elevation above sea level, are generally used to show surface relief. By their relative closeness of spacing the degree of slope is read. The United States Topographic Maps use contour lines. For less exact use hachures are employed. These short, straight lines vary in thickness and closeness with the slope and follow the directions of the steepest slopes at right angles to contour lines. Tints and light-and-shadow effects are also successfully used to show relief variation. Graphic devices are used to show areal distribution of geographic factors such as climate, production yield, cultural status, etc. Some, like crop maps, account for density of distribution. Others, like maps of religious status, do not. Among the usual devices are color or shade variations, cross hatching, dots, graduated circles, cubes, spheres, bar and pie graphs, square graph maps, and pictorial statistical maps. Isopleths, or isarithms, are lines drawn through points on a map having equal absolute or relative value. Instances are isohypses, (contour lines), isobaths, isobars, isotherms, isogons, and isohyets. Within the limits of isoplethic lines regularity of distribution cannot be ascertained.

Maps help to vitalize the study of geography and other subjects. Because of the limitations of maps, a globe should always be used in conjunction with them. The first concepts of children in the primary grades may well arise from maps they make in connection with field trips as part of their unit of work. The need for using direction guides, symbol, color, scale, and legend immediately arises and soon leads to consultation of pre-

pared maps. Mapping the neighborhood is a good preparation for later understanding of latitude and longitude. Map language must constantly be linked with children's experiences, direct or vicarious. Teachers must know and point out the limitations of the various projections, particularly the Mercator. Children ought not to have difficulty using the Goode homolosine equal area projection for study of areal distribution of geographic conditions.

Maps should be used not only for locational purposes and surface study but also for solving problems or introducing the study of a regional unit. They should be constantly at hand as a ready reference. The value of excessive drawing or copying of maps and even making clay maps is in question. Children should perform many exercises with previously prepared maps, in outline or otherwise, so as to increase their understanding of geographical relationships. Above all, interpretation of many kinds of maps is to be emphasized.

J.H.S.

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MARIJUANA—See NARCOTICS.

MARIONETTE SHOWS—See DRAMATICS.

MARKING SYSTEMS—See RECORDS AND REPORTS; STANDARDS OF ACHIEVEMENT.

MARRIAGE, EDUCATION FOR—See FAMILY LIFE, EDUCATION FOR.

MARRIED STUDENTS. Marriage is not among the causes for which a person of school age may be barred lawfully from the public schools. Two supreme court decisions, one in Mississippi and the other in Kansas, commended the married persons of school age for desiring to attend school, and pointed out that the privilege of attending school should not be denied anyone within school age unless it is clear that the public interest demands exclusion. The matter is important because 18,317 girls from 15 to 19 years of age, of

whom half were 15, 16, or 17 years old, were married and attending school in 1930, which was probably a typical year in this respect.

A.V.O.

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MARRIED WOMEN TEACHERS — See TEACHERS, STATUS OF.

MARXIAN PSYCHOLOGY—See PSYCHOLOGY, SCHOOLS OF.

MASTER TEACHER—See STUDENT TEACHING.

MASTERY FORMULA—See MORRISON PLAN.

MATCHING TEST — See OBJECTIVE TESTS AND EXAMINATIONS.

MATERIALISM. Materialism is the theory that the elements of the universe can be reduced to one substance, matter, or matter in motion, of which the mind is merely a derived product. Included in this belief is the idea that laws run the universe, without any direction or supervision from a Divine Being. The materialist, in thus eliminating soul and a God, holds that education has no goals beyond those in this life. Also his emphasis on some form of material substance as ultimate reality leads him to stress the sciences and experimentation in the educational program. (See also MONISM.)

W.A.S.

MATHEMATICS, TEACHING OF. Over a long period three concepts have influenced curriculum and instruction in secondary school mathematics. These are: first, the disciplinary aim, relating to mental habits of precision, accuracy, and the like; second, the cultural values attendant upon appreciations and attitudes; and third, the utilitarian values of power to apply mathematics. In these concepts two important aspects of mathematics teaching are apparent: the *mathematical* or formal, concerned with the system and logic of mathematics; and the *social* or functional, concerned with the importance of its applications in the modern world. Of these, the former has until recently received the major attention.

Trends in Curriculum. The traditional college preparatory subjects—plane and solid geometry, algebra, and trigonometry, together

MATHEMATICS, TEACHING OF

with vocational mathematics such as business and shop mathematics—are those most commonly found in the curriculum. More recently, general mathematics in the first or last year has become important as an elective. Trends in the modification of content are in the main responses to four factors:

The change in the character of the high school population. With the great diversity of individual characteristics and purposes in the modern population of the high school, increased attention is being given to possible contributions in mathematics to the purposes of general education. So far as curricular modifications are concerned, adjustments have been limited to general mathematics courses either in the first or last year of high school, primarily intended for those not taking the college preparatory sequence. While there is still little agreement as to the nature of such courses, the trend appears to be toward the study of significant problems of the home, farm, shop, business and vocations, industry, safety, and health. Mathematics is thus considered as a means for developing efficiency in consumer or producer. The mathematical processes and operations to be utilized are those most suitable for studying the topics and acquiring understanding.

The reaction against crowding the entire arithmetic program into the grades. The general upward re-allocation of topics in arithmetic necessitates one of two adjustments: the entire ninth year must be given over to general mathematics, completing the arithmetic program and including such algebra and geometry as are applied to topics studied; or algebra is provided for students beginning the college preparatory sequence, with a parallel general mathematics course for non-college students.

Revisions in the theory of learning, particularly in the recognition of the need for many concrete experiences as the basis for development of abstract ideas of number and principles of mathematics. This factor has acted to direct emphasis to the social or functional aim. In this it has acted in the same direction as the fourth factor, namely, *the increasingly quantitative nature of social and vocational problems*, coupled with emergency demands for greater mathematical competence in the products of the schools. These factors have influenced the content in courses outside

the college preparatory sequence already mentioned. The college preparatory sequence, while not altered in form over a period of years, has undergone some modification in content through substitution of significant content for obsolete and useless materials.

In algebra, greater attention is being given to such functional topics as formulas, equations, graphs, and verbal problems, while there has been a decrease in emphasis on complicated algebraic techniques and factoring. In geometry, while training in logical thinking is still considered one of the major outcomes, there is less attention to scientific rigor and strict logic. There is a tendency to accept some obvious truths, and to verify others by experimentation. Some schools are utilizing geometry as an opportunity for a study of the nature of proof, carrying the techniques of critical thinking into non-mathematical problems such as the analysis of propaganda. Others stress the study of form, size, and position, considering logical thinking as only one of many important outcomes.

There is an increasing tendency to include a study of numerical trigonometry either with algebra or geometry, and to give some portions of solid geometry, either intuitively or with proofs, along with plane geometry. These adjustments are necessitated by the utility of these topics, and the fact that only a few students pursue mathematics beyond algebra and geometry.

Trends in Classroom Procedures. Recent trends in classroom procedures are mainly in response to increasing attention to individual differences, and the need for adapting instruction to those with relatively low mathematical aptitude. There is an increasing tendency to use visual aids, field trips, and other supplements to strictly verbal presentation. There is also an increasing use of long unit assignments, and other devices that make possible differentiated content and procedures. Recent experimentation has also revealed the importance of attention to vocabulary difficulties. In general, the greatest changes have been in the first year of the high school, and the least, in the college preparatory sequence. (See ARITHMETIC, TEACHING OF.)

Junior High School Mathematics, Teaching of Functions and Purposes. The program

MATHEMATICS, TEACHING OF

in mathematics in the junior high school has been well described by the National Committee on Mathematical Requirements as "an introductory, basic, exploratory course, in which the simple and significant principles of arithmetic, algebra, and geometry, statistics, and numerical trigonometry are taught so as to emphasize their natural and numerous relations". As they exist today, curriculum and instruction in junior high school mathematics represent the resultant of two movements, one in the field of mathematics, the other in secondary education. The former was an effort, undertaken at about the turn of the century, to make mathematical competence available to a larger proportion of secondary school students by adapting content and method to the individual and stressing utility and pupil interest. Beginning in England with the work of Perry, and continuing through the efforts of leaders in this country, this point of view may be traced through to the Report of the Joint Committee of 1940.

The second movement referred to is the junior high school reorganization. This was a response to the inadequacy of the procedures and methods of grades seven, eight, and nine in the traditional organization as it existed in the first two decades of the century. In view of the wide range of individual differences in the new school population, as well as the acceleration of social and economic changes, special provision is necessary at this level to render operative three important functions. The nature of junior high school mathematics is best understood in the light of these functions.

1. *Adaptation to individual differences.* These reach their peak in the years of the junior high school, since in the senior high school some selection occurs through specialization of curricula. Of particular importance to teachers of mathematics are differences in aptitudes, interests, plans, personality, experiences, and sex.

2. *Exploration and guidance.* These functions should precede differentiation and specialization. In mathematics it is particularly important that some exploratory experiences with advanced fields precede election of college preparatory courses.

3. *Transition.* Both in methods of teaching and curricular content there should be a progressive change from the guided and directed

activities of the grades to the independence and initiative of the high school and college.

In view of these functions, it is to be expected that aims which relate to disciplinary outcomes should hold a relatively unimportant place in the courses of study in junior high school mathematics, when compared with aims of senior high school mathematics. Disciplinary and cultural values appear, and are recognized in most modern text books, but they are relatively less important than provision for exploration and guidance, specific knowledges useful in life, and accuracy and facility in the fundamental operations.

Trends in Organization. The content and organization of the typical three-year sequence in junior high school mathematics show the influence of European practices, in that arithmetic, algebra, and geometry, together with some graphic representation and numerical trigonometry, are carried through the three years. Aside from the fact that this organization makes it possible to use whatever fields are necessary for studying the applications of mathematics in the social and economic environment of the pupil, there are other advantages in this organization. A longer period of maturation is provided for each field; easier and more concrete parts of each can be studied before the more difficult and abstract parts of any are attempted; the processes of other fields are available for assistance as difficult topics are studied in any one.

In grades seven and eight the emphasis on all three fields is more or less the same. In grade nine a diversity of practices appears. If the point of view of the junior high school is maintained, then the three fields are carried through the year with about equal emphasis, and try-out units of formal algebra, geometry, and trigonometry are introduced for exploratory and guidance purposes. The college preparatory sequence is then begun in the senior high school, in grade ten. The trend appears to be in this direction.

If the college preparatory sequence is begun in the ninth grade, the needs of the non-college group are cared for in one of three ways:

1. No further courses are made available outside the specialized college preparatory program.

2. Ninth grade algebra is offered for all

MATHEMATICS, TEACHING OF

pupils, in an endeavor at the same time to adapt the applications to the purposes of general education, and maintain standards suitable for college preparation.

3. Algebra is provided for the college preparatory group, and general mathematics for the non-college group.

Trends in Content. The general practice, both in textbooks and courses of study, is to recognize the several fields of mathematics as distinct. There is little tendency to fuse the fields of arithmetic, algebra, and geometry. There are differences, however, in the bases for organizing the content of the courses. The differentiation lies in the practice, on the one hand, of using mathematical topics or processes as the basis of organization, as *percentage*, *formulas*, or *similar figures*; or on the other hand, of organizing content around economic topics, as *travel*, *transportation*, or *production of goods*. When this latter plan of organization is used, the criteria for selecting the processes to be applied are the readiness of the pupil to utilize them effectively; their value in contributing to the understanding of the social and economic problems; and the necessity for developing a logical sequence in mathematical operations.

The arithmetic incorporated in the sequence has two main purposes, both of which are being accentuated by the upward re-allocation of topics in the grades. One is to complete a remedial program of skills in the operations. The other is to study important social topics in which arithmetic is the means of acquiring understanding. Every course of study in junior high school mathematics includes business topics, such as banking, insurance, and investment. Many include a study of government, and there is an increasing tendency to utilize arithmetic as a means for developing consumer intelligence. There is a trend toward grouping smaller topics such as budgeting, accounts, earning, and the like, under a general heading such as *Managing the Family Income*.

Algebra, in grades seven and eight, includes the use of literal number in formulas, the solution of simple equations intuitively (by using "common sense"), simple operations with monomials, fundamental concepts like *formulas*, *similar terms*, and *coefficient*, and often simple uses of directed numbers.

These are introduced in realistic problem situations, and the emphasis is on significance, rather than on theoretical treatment. The algebra content of grade nine, as we have seen, varies in different plans of organization.

The geometry of the junior high school rarely touches on demonstration of theorems and the nature of proof, except for purposes connected with exploration and guidance. It is rather concerned with development of concepts, facts, and relationships of geometry through intuitional and laboratory procedures. Several general types of activity have been defined:

1. Intuitive geometry, used when the pupil looks at a figure and discovers the obvious, for example, the equality of vertical angles.

2. Experimental geometry: fitting the angles of a paper triangle together to discover the sum.

3. Observational geometry, which sensitizes the pupil to the geometric relationships in his environment.

4. Geometric constructions, both with ruler and compass, and with drawing instruments.

5. Simple demonstration, through informal proof of simple facts: deducing the sum of the angles of a quadrilateral, when the sum of the angles of a triangle has been established.

L.B.K.

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MATRICULATION. Matriculation is the procedure by which a person not before enrolled in a given college or university supplies the necessary information and otherwise satisfies the requirements for enrollment as a student. This procedure may be long and complicated and may include giving any of the following information: applicant's full name, date and place of birth, home address; parent's name, address, occupation, and education; name of secondary school attended, dates of attendance, and transcript of record; physician's statement concerning applicant's health; character recommendations; religious affiliation; information about other colleges attended (if other colleges were attended, such information as official transcripts of records and recommendations from those colleges); college course which the student intends to pursue. Frequently admission, placement, or college aptitude tests are required as part of the matriculation requirements. (See LIBERAL ARTS COLLEGE.) R.A.K.

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MATURATION—See CHILD PSYCHOLOGY; GROWTH AND MATURATION.

MEAN—See CENTRAL TENDENCY.

MEASLES—See COMMUNICABLE DISEASES OF CHILDHOOD.

MEASUREMENT IN EDUCATION. Measurement in some form has doubtless always existed in education. It seems inevitable that teachers should attempt in some way to determine and to describe the progress of learners. For a long time, however, the rôle of measurement in education was recognized

only vaguely, and the techniques employed were quite informal and usually highly subjective. In recent years great progress has been made toward clarifying the functions of measurement and toward improving the instruments used.

Three functions of measurement may be differentiated; namely, the administrative, instructional, and research. Schools have long used measurement for the classification and promotion of pupils. The modern school emphasizes other administrative functions of measurement, notably in vocational and educational guidance, in evaluating various aspects of the school program, and in public relations. Classroom teachers find many instructional uses for measurement. Probably the most important of these is educational diagnosis and remedial instruction. Teachers recognize the dependence of correction upon diagnosis, and rely upon a variety of measurement techniques for locating the weaknesses of individual pupils. It has also been shown that the measurement employed motivates learning, and affects both the amount learned and the study procedures employed. Educational research relies upon measurement for determining the initial status of the experimental and control groups and for establishing the comparative progress made.

It is important to recognize a distinction between direct and indirect measurement. Measurement may be described as direct when it calls for the functioning of the ability or trait, or is arrived at by direct comparison of the unit with the thing measured. Physical measurement of strength, speed, height, and weight are examples of direct measurement, while the measurement of temperature is indirect.

Many distinctly educational measurements are indirect; that is, they infer the existence of one trait or ability from the measurement of another. It is well known that intelligence tests, for example, seek to measure learning capacity indirectly by measuring directly what the pupil has actually learned. The quality of a school is often measured indirectly in terms of the adequacy of its physical plant and the training and experience of its staff rather than in terms of its finished product. Even the ordinary measurement of educational achievement commonly involves an inference. For example, the pupil's ability

to read connected material under the normal conditions of life is usually inferred from his ability to answer questions based upon unconnected paragraphs read under the artificial conditions of the schoolroom. The validity of indirect measurement obviously depends upon the correlation of the abilities actually measured with those whose existence is only inferred.

At the present time, tests and examinations (*q.v.*) of a wide variety of types constitute the most important instruments of measurement. The effective use of both standardized tests (*q.v.*) and nonstandardized tests, whether essay examinations (*q.v.*) or objective tests (*q.v.*), depends upon a clear understanding of their comparative advantages and limitations. Other instruments include questionnaires, rating scales, and interviews (*qq.v.*). Recently the term *evaluation* (*q.v.*) has been used to suggest a more comprehensive concept of measurement which attempts to appraise the whole personality of the child and emphasizes the less tangible outcomes of instruction, such as attitudes, appreciations, interests, ideals, and points of view. (See such topics as *EVALUATION; GUIDANCE; RESEARCH, EDUCATIONAL; STANDARDIZED TESTS.*) C.C.R.

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MECHANIC ARTS—See **INDUSTRIAL ARTS EDUCATION.**

MECHANICAL ABILITY. "Mechanical ability" refers to the general capacity of a person for dealing with concrete objects. The correlations between verbal intelligence test scores and those of mechanical aptitude are low. This has led to a distinction being drawn between abstract intelligence and mechanical or concrete intelligence. Tests of abstract intelligence are largely verbal in content while tests of mechanical aptitude are in large measure performance tests involving manual skill and insight into the relations of objects and parts of objects (especially mechanical objects) to each other. This apparent independence of mechanical ability has led some educators to regard it as a special ability and

to suggest that it is probably a specific innate capacity. However, since school practice has in the past emphasized verbal learnings and neglected the development of mechanical aptitude, the lack of mechanical ability may be due in many cases to lack of interest and education in mechanical activities. Consequently, while the use of mechanical aptitude tests may serve to discover persons who are especially capable in such activities, the failure of others to make satisfactory scores may be a result in large measure of the non-mechanical bias of their elementary and secondary education. Educators may well extend to children and youths wider opportunities in such fields as drawing, construction, and experimentation in mechanics with the expectation that the average mechanical ability of both girls (who have been especially neglected) and boys will be increased. (See *APTITUDE.*) W.F.B.

MECHANICAL SCORING OF TESTS.

Machines are available for scoring objective tests of the true-false, multiple-choice, and matching types. Separate answer sheets are provided on which the choice of answer is indicated by a pencil mark. This mark is electrically conductive and, when the answer sheet is placed in the machine, is used to close a circuit, the resulting flow of electricity being recorded as a measure of the number of correct or incorrect responses.

The use of the machine reduces the possibility of errors in marking caused by carelessness or fatigue, shortens the time it takes to assemble data on test results, and eliminates the drudgery of the correction of test papers. The major shortcoming of mechanical scoring of tests arises from the fact that present machines can correct only a very few types of questions. The convenience of mechanical scoring may thus encourage the use of such types of questions as the multiple-choice question even in situations where other types of new-type questions and essay questions may be more appropriate. (See *ESSAY EXAMINATION; OBJECTIVE TESTS and EXAMINATIONS.*) J.J.

MEDIAN—See **CENTRAL TENDENCY.**

MEDICAL EDUCATION. The United States Constitution provided no supervision over medical education or medical practice, but left this to the individual states. The first

MEDICAL EDUCATION

period in medical education was that of apprenticeship, when young men assisted busy practitioners in their daily work and started to practice either without a degree or with authority conferred by a local medical society or college. This was followed by the establishment of the private or proprietary medical school relying for support largely or solely on the fees and good will of the medical students. The lack of legal safeguards made it easy for any group to open a medical school and grant degrees. In 1906 there were 162 medical schools in the United States. After the establishment, in 1904, of the American Medical Association Council on Education, medical schools were inspected and graded according to their degree of excellence. The number of medical schools decreased and their standards rose. Medical schools now share in the educational and financial support of universities, are sometimes privately endowed, and are equipped with good laboratories, well trained teachers, efficient methods of instruction, and close dispensary and hospital affiliations.

The premedical student should be aware of the importance of a well rounded general education as a preparation for the study of medicine and should not limit himself to scientific courses. The minimum requirement since 1918 has been two years of college work, including English, theoretical and practical courses in physics, biology, and in general and organic chemistry—usually completed in institutions approved by the Association of American Universities, North Central Association of Colleges and Secondary Schools, Southern Association of Colleges and Secondary Schools, Middle States Association of Colleges and Secondary Schools, Northwest Association of Colleges and Secondary Schools, or New England Association of Colleges and Secondary Schools. While there is no stated rule prohibiting acceptance of applicants from schools not approved by one of these accrediting agencies—selection is based on quality of preparation, regardless of where obtained—officials give preference to those who have prepared in institutions known to conform to accepted standards.

Since success in the medical curriculum demands more than average intelligence and industry, the college student who cannot place himself in the upper third of his class will

usually find it inadvisable to start on a medical career. The selection of a student depends on the results of an interview with members of an admission committee or one of its regional representatives, in addition to an evaluation of the student's curricular and extracurricular record, his percentile rating in the Medical Aptitude Test, as well as carefully prepared confidential appraisals by teachers who know him personally.

Although most accredited medical schools require more than the minimum two years of preparation, their requirements are not rigid in the matter of elective courses. To some extent the candidate should be governed by his own chief interests and the intellectual stimulus to be derived from the work. A literary background is of inestimable aid to his career. In general, he should prevent duplication by avoiding courses in subjects that are included in the medical curriculum.

The standards set for entrance to medical school are reflected by the fact that only slightly more than one per cent of all students admitted to medical schools in 1941-42 had less than three years of college work.

The standard medical curriculum requires 3,600 to 4,400 hours for its completion. The work is grouped as follows:

Anatomy, including embryology and histology
Physiology
Biochemistry
Pathology, bacteriology, immunology
Pharmacology
Preventive and tropical medicine, public health
Medicine
Pediatrics
Surgery
Obstetrics and gynecology

The general trend in enrollment and graduation in medical schools for the period 1905 through 1942 is shown below:

Year	Schools	Students	Graduates
1905	160	26,147	5,606
1910	131	21,526	4,440
1915	96	14,891	3,536
1920	85	13,798	3,047
1925	80	18,200	3,974
1930	76	21,597	4,565
1935	77	22,888	5,101
1940	77	21,271	5,097
1942	77	22,031	5,163

All but six of the 77 medical schools in the

MEDICAL EXAMINATION — MEMORY

country admit some women students, and the Women's Medical College of Pennsylvania teaches women students exclusively.

Women in Medicine in the United States

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1905 ..	1,073	4.1	219	4.0
1910 ..	907	4.0	116	2.6
1915 ..	592	4.0	92	2.6
1920 ..	818	5.8	122	4.0
1925 ..	910	5.0	204	5.1
1930 ..	955	4.4	204	4.5
1935 ..	1,077	4.7	207	4.1
1940 ..	1,145	5.4	253	5.0
1942 ..	1,164	5.3	279	5.4

W.C.D. and A.M.S.

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MEDICAL EXAMINATION — See HEALTH.

MEMBERSHIP, SCHOOL — See ATTENDANCE OF PUPILS.

MEMORITER METHOD. A method of teaching that makes its basic appeal to memory; arbitrary rote learning. The term is now used mainly in a derogatory sense. While it is granted that sound education requires the retention of many facts and principles, these must be imbedded in a matrix of meaning to be educative. (See **CATECHETICAL METHOD.**) W.R.

MEMORY. Memory is involved in practically everything we do and say and feel. In this sense it may be defined as past experience which involves present experience. The problem of how we remember overlaps largely the problem of how we learn. The use of the noun *memory* may stem originally from the belief that memory was some kind of special substance or specific structure or "faculty" which allowed the act of remembering to proceed. Since the belief in specific

mental faculties has been largely discarded, many psychologists prefer to discuss memory as the act of remembering.

Several forms of remembering can be distinguished: (1) the recognition of a present event as similar to or different from a past event, (2) reminiscence, (3) the reproduction in response to a direct demand of a past event exactly as it was experienced, (4) the giving in answer to a familiar situation of a response which was learned originally as the response to an identical or closely similar situation, (5) the summoning from the past of learnings pertinent to the solution of a present situation which is novel to a greater or lesser degree.

The manner of learning affects the ability to remember after a lapse of time. It has been found that even things which must be learned by heart so that they can be recalled later exactly as learned (e.g., poetry, a dance pattern, a musical selection, the date of an event, etc.) are remembered better if understanding as well as repetition was included in their learning. Where remembering of the fifth type described above is required, it has been found that rote learning is largely ineffectual. The essential process here is that of grasping the meaning of a rule, definition, paragraph, demonstration, situation, or any other learning experience. For understanding of the meaning makes the experience available for use in new situations as they arise. Rote memorization is thus reduced to a minimum in modern schools. Verbalization of subject matter which is understood is, however, an aid rather than a hindrance to remembering; e.g., the verbalization of a procedure, of a generalization, of a scene, or of an ideal.

The capacity to remember is affected also by the degree in which the material was mastered in the first place, the nature of the materials (meaningless materials being forgotten faster than meaningful ones), the affective or emotional aspects of the materials or situations both at the time of learning and the time of recall, the individual's interests and purposes, and the individual's level of intelligence. The capacity to reproduce with rote recall a series of digits or nonsense syllables increases throughout childhood into late adolescence, and the capacity to remember logical materials follows a similar course,

probably continuing its development to a later age.

While the various forms of remembering distinguished above are positively correlated to a sufficiently high degree so that a test using any one form only will usually correlate well with a test using another form only, the ability to remember a fact in the form in which it was learned does not imply the ability to recall that fact for solving a new problem. Recognition is similarly related to recall, so that a true-false or multiple-choice test *may* produce results which are better than would be shown on a short-answer or completion test of matching items.

The curve of forgetting, which indicates the percentage of what is retained of the original learning after various periods of time have elapsed, differs in different cases but it commonly shows a comparatively rapid initial loss followed by a very slow rate of continuing decrease. The degree of initial loss pictured by the famous Ebbinghaus curve was very great, being considerably over fifty per cent after a single day. It has been found that this initial loss is less the better the material is learned in the first place. Different school subjects show different rates of forgetting. Specific factual material in science is forgotten faster than scientific explanations and generalizations. As a matter of fact in cases where reasoning is involved, improvement rather than loss is often shown over a period when there is no study in that area. The Ebbinghaus curve was based upon nonsense material. The more the subject matter resembles nonsense to the learner, the more his curve of forgetting will resemble the Ebbinghaus curve.

The curve of forgetting indicates the quantitative but not the qualitative aspects of forgetting. We not only forget; we remember things inaccurately. What is remembered even with a feeling of great certainty may be quite different from the original happening or learning. The emotions of the present are often projected into the past which is then schematized in terms of those emotions. Sometimes this inaccurately reconstructed situation is then itself memorized and becomes the basis of future remembering. Even where strong emotions are not concerned the process of remembering-forgetting is still dynamic. There is a tendency both to remember things

as simpler than they were, and to elaborate to a considerable degree. Where the situation actually observed had an unfinished quality about it, it is apt to be remembered with the inclusion of some item which gives it a more completed character. Incoherent features of a scene are often forgotten or rearranged so that the event is remembered as a logical pattern. What is remembered is also more balanced and symmetrical than what actually was seen or heard. These generalizations are borne out by the testimony of witnesses who have sworn to tell exactly what they saw and heard, and by laboratory experiments of the perception of visual forms and of the retelling of stories.

For the educator the problem of remembering is the problem of efficient study and learning. The effort to recall (or recite) material which has been learned only partially is itself an aid to memorization. Such recall, when it can be compared with the original, will at the same time allow inaccuracies of remembering to be removed. Review of material before too much has been forgotten will bring the learning back to a level of mastery which will result in a slower rate of deterioration. However, the best technique for halting or slowing up the process of forgetting is the continuous use of the learned facts in new relationships.

W.F.B. and B.B.F.

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MENTAL AGE—See INTELLIGENCE QUOTIENT.

MENTAL CONFLICTS—See CONFLICTS (MENTAL AND EMOTIONAL).

MENTAL DEFICIENCY. *Mental deficiency*, also known in the United States as *feeble-mindedness*, is an inadequacy of mentality or intelligence, which in some cases may be so great as to amount almost to a lack of

MENTAL DEFICIENCY

mentality. The inadequacy is measured in terms of some standard, usually allowing different degrees of inadequacy to be recognized. The British Mental Deficiency Act of 1927 uses a qualitative standard to distinguish three grades of mental deficiency which is generically described as "a condition of arrested or imperfect development of mind existing before the age of eighteen years whether arising from inherent causes or induced by diseases or injury." Persons of the lowest grade of mental deficiency, the *idiots*, are defined as those "so deeply defective in mind as to be unable to guard themselves against common physical dangers." The next grade of mental defectives, the *imbeciles*, are described as "being incapable of managing themselves or their affairs or of being taught to do so," while the highest grade defectives, termed *feeble-minded* in England and *morons* in America, are those whose mental defectiveness is sufficiently pronounced to "require care, supervision, and control for their own protection, and the protection of others, or, in the case of children, that they, by reason of such defectiveness, appear to be permanently incapable of receiving proper benefit from the instruction in ordinary schools."

American psychologists have voiced dissatisfaction with these descriptions partly because many cases of *dementia* (involving decline in mental ability due to insanity) can be classed as *amentia* (mental deficiency), under the definition of the latter in the British law. *Amentia* and *dementia* are sometimes difficult to distinguish in young children unless an accurate case history of the child's development can be obtained. Because the treatment differs for *amentia*, occurring alone, *amentia* and *dementia* occurring together, and *dementia* occurring alone, it is important to distinguish between the two types of abnormality.

On the whole, American psychologists favor using the average I.Q. (*q.v.*) obtained on several standardized intelligence tests as one of the main criteria of mental deficiency, though warning that the final decision as to whether or not the person is mentally deficient, and to what degree, should be made only by trained psychologists and psychiatrists, especially in those cases where the classification leads to such an important de-

cision as institutionalization. State Education Laws commonly specify an I.Q. range from which the children to be taught in special classes for the mentally retarded are to be drawn. The New York State Education Law excludes idiots (below 20 or 25 I.Q.) and imbeciles (20 or 25—50 I.Q.), limiting the range for special-class placement to children with I.Q.'s between 50-75 I.Q., as well as specifying a range between a mental age of 5 years and 10 years. A few states put the lower limit at 35 I.Q.; and some put the upper limit at 70 I.Q. (Note: These I.Q.'s are all based on the 1916 revision of the *Stanford-Binet* test. The new revision of the *Stanford-Binet* and the revision of the *Kuhlmann-Binet* for younger children, now called the *Kuhlmann Tests of Mental Development*, may lead to slightly different I.Q. limits.) Some teachers deplore the setting of a mental age of 5 as the lower limit for special class education, contending that this means that a child with an I.Q. of 60 must remain in regular classes until he is eight and a half years old, even though he cannot profit from the instruction given that class. Others argue that the regulation is a wise one, in that the validity of the tests for children with mental ages below five or six is open to question.

The proportion of mentally-deficient in the population depends upon the definition used. Using the new revision of the *Stanford-Binet Intelligence Test*, it is theoretically estimated that about 2 per cent of the population have I.Q.'s below 70, while almost 4 per cent have I.Q.'s below 74. The United States Office of Education states that mentally-retarded children constitute two to five per cent of the juvenile population. New York State has estimated that about 2 per cent of the children fall within their 50-75 I.Q. range for special classes. The number of individuals with a given I.Q. decreases as one goes down the scale to greater and greater deficiency; thus there are fewer individuals with I.Q.'s of forty than with I.Q.'s of fifty. Since the lifespan of low-grade defectives is less than that of normal individuals—their mental deficiency being combined with marked physical deficiency, particularly lack of coordination—the proportion of low grade defectives in the general population becomes less as the chronological age of the group that is being measured increases.

MENTAL DEFICIENCY

The physical factors involved in mental deficiency are much more obscure for high grade mental defectives than they are for idiots. Though intelligence is no longer considered to be a simple genetic trait, mental deficiency, in those cases where it seems to have been present from birth and where there is no record of fetal or birth injury, is usually attributed to heredity. The inherited traits which contribute to mental deficiency are thought to vary with different individuals.

From a practical point of view, the problem for the educator resolves itself into the question of whether specific cases of mental deficiency can be treated so as to bring about a higher degree of mentality. Certain types of mental deficiency which have been distinguished on a basis of a specific type of physical deficiency or disease receive medical treatment, often successfully. For example, *cretin* idiots, whose thyroid secretion is inadequate, have shown considerable mental improvement, especially in some cases, when thyroid feeding was begun early and continued regularly. In cases where there has been successful treatment of epilepsy, the accompanying mental deficiency has also been known to improve. In such cases the individual may, within a calendar year, gain even more than one mental year on intelligence tests until he has caught up to the normal level. All sorts of medical and nutritional therapeutic measures are being experimented with, but on the basis of present evidence and techniques, there is little hope that such measures will raise the I.Q. considerably, except in a few cases. However, even ten or fifteen I.Q. points of improvement may mean that functional intelligence is raised sufficiently so that the child can make better social adjustments than heretofore. It may even mean the difference between institutionalization and non-institutionalization.

Whether treatment other than medical and nutritional will lessen mental retardation is of even more interest to the teacher. Here again improvements of a non-spectacular nature have been reported to accompany the provision of a better social and educational environment than the aments had previously experienced. Of considerable interest is the finding that though the I.Q. of the feeble-minded usually declines with age, children

who are given special education or who are placed in better environments maintain, and may even improve, their I.Q. Particularly suggestive for teaching methods, even though the number of subjects in the experiment were too few to warrant the making of scientific conclusions, were the results of Kephart who found significant changes in the I.Q.'s of institutionalized high-grade moron (I.Q. range 60-75) and borderline children (I.Q. range 75-90) when the teaching emphasized the activity of the learner, his ingenuity, initiative, and original planning, rather than the finished product. Since many books on the education of the mentally-retarded and slow learners still advocate drill and imitation as the best methods, Kephart's conclusions for teaching are challenging. Curriculum guides for mentally-retarded children which have been prepared by the United States Office of Education also recommend an experience curriculum related to the child's immediate interests and environment rather than drill on the "minimum essentials." Necessarily, the content of the curriculum for the mentally retarded, the speed with which they are expected to learn, and the abstract conceptions which they can build upon their direct experiences will all vary from what is provided for and expected of normal children. Modern theory, however, shows a definite trend towards favoring the same general type of teaching methods for high grade imbeciles and morons as for normal children. It must be remembered, however, that the differences between idiots and morons and between imbeciles and high grade morons are even greater than the differences between morons and normal individuals. The great range of individual differences among these handicapped children must be borne in mind when it is said that mentally deficient children are retarded in physical development, that they have defective sensory capacity, that they lack the ability to concentrate, that they suffer from faulty retention and recall, that their imagination and reasoning are feeble, that they cannot anticipate consequences, that they have great difficulty with symbols, that their vocabulary development is poor, that they lack the ability to control and inhibit emotional responses, and that they are easily swayed by others. The education of the best among them must not be based on the quali-

MENTAL HYGIENE

ties so observable among those lowest on the scale of intellect.

Education for the mentally deficient should consist more of direct experiences and less of verbal teaching, even when the verbal teaching is oral in nature. Language handicap is one of the most pronounced weaknesses of these children, and though morons can be made by systematic drill to memorize all kinds of verbal facts, this learning does them little good if the words remain meaningless to so great an extent that the verbal knowledge cannot be put to any use. It has often been said that mentally retarded children can learn the same things that normal children of equal mental age can. This statement is not always true, since the normal child of five is much faster in his responses, and often in insight, than is the ten-year-old child with a mental age of five years. Moreover, because of the very small amount of progress that the child with a low I.Q. can make, it is foolish to teach him the beginnings of processes or informations which are valuable only when considerable mastery has been obtained. This is true with regard to reading, arithmetic, and spelling on which backward children usually spend an amount of time entirely disproportionate to the usefulness in their adult life of the learning which such children can acquire in these areas. As a guide to what should be taught, the final mental age which each child can reach should be taken into account and experiences should be arranged for him which will eventually bring him to as great a degree of self-responsibility as possible. From all that he is capable of learning, there should be selected those learnings which are necessary for his protection and safety, which will help in his social adjustment, which will lead to a vocation, and which will keep him generally happy and well-adjusted.

The emphasis on the social development of the mentally-retarded child is seen in the Vineland Training School, New Jersey, where Doll has devised a special scale for the measurement of social maturity, *The Vineland Social Maturity Scale*, which uses the technique of recorded observation by trained workers. The set of behaviors listed for each age level will give teachers some idea of how to evaluate the progress of the mentally-handicapped in areas other than the subject-matter areas in which the bulk of the achieve-

ment tests for the normal children lie. With proper education and attention to their relatively strong points, even low-grade morons have been able to turn into self-supporting men and women of sufficient stability to need little help from others. However, since unscrupulous persons are ready to take advantage of the mentally-retarded individual at those points where the latter has not sufficient intelligence to think problems out properly, it would be well for schools to help special class children to learn which people they can safely go to for advice and to develop the readiness to ask for such advice when needed. (See INTELLIGENCE; SLOW LEARNER.)

B.B.F. and W.A.K.

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MENTAL HYGIENE. Mental hygiene is an approach toward human adjustment and achievement, concerned with preventing emotional maladjustments and enabling individuals to operate at their most efficient levels. The earliest concept of mental hygiene focused on the treatment of mental illness, but there has been over the past two decades a shift of emphasis to the prevention of mental illness and the adjustment of individuals to their environment. Its practice is based largely on the body of knowledge contributed by the various sciences that promote the understanding of human behavior, but while much of mental hygiene rests on a scientific basis, there remains a significant contribution derived from the experiences of those who have developed the art of guiding the growth, development and adjustment of individuals. Through its preventive and therapeutic aspects mental hygiene has universal implications, for while the study and treatment of maladjusted individuals is the responsibility of the trained professional person, the prac-

MENTAL HYGIENE

tical use of mental hygiene concepts is the concern of everyone.

Acquisition of a mental hygiene point of view involves an awareness of the implications of behavior, an interest in the reasons for conduct, and a knowledge of the far-reaching effects of human relationships. It is of particular importance for the teacher who recognizes the educative function as not merely the imparting of subject matter but involving a much broader area, that is, helping the child to learn how to live as a social being in an environment which will make demands of him, and to which he must adjust; to develop healthy mental attitudes; to make reasonably full use of his physical and mental endowments; and to derive personal satisfactions and happiness. An interest in the child's motivations and in his reactions as an individual with his own differences enables the teacher to direct the child's educational experience so that he can enhance or establish his emotional security, his feelings of adequacy, and his self-worth.

The mental hygiene orientation implies that we look upon the child as a functioning whole, whose separate attainments and functions cannot be isolated without disturbing the pattern of the whole. His behavior is purposive, the result of not one but many factors. The child's behavior is his attempt to meet a situation, to handle his needs—in effect, to make an adjustment to the environment. The behavior may or may not be socially acceptable, depending largely upon the quality of the child's personality development. In considering conduct or behavior we look beyond the overt or manifest act and seek the underlying reasons for it. We endeavor to understand what it represents and why it has happened, rather than focus all our attention and remedial efforts on what has happened. Thus, in the child presenting deviations from accepted or normal behavior, the behavior should be looked upon as symptomatic of his conflicts and difficulties. As we go into the causes of the behavior we uncover significant factors responsible for the way in which the person is reacting. At birth, the child is endowed with a capacity for growth and development. He is also the possessor of certain inherited physical and intellectual potentialities and limitations. The way in which these will affect the child depends in large part

upon his early life experiences in the home and in the school. Although the family experiences play the greatest rôle, the school has a significant effect upon the child's emotional adjustment.

Fundamental to the child's ability to achieve emotional adjustment is the development of emotional security. This state is characterized by a feeling of safety, of belonging, of self-worth, and gives the individual an assurance regarding his ability to cope with whatever situations may arise, whether they be adverse or not. It is an outgrowth of the parent-child relationship and is nourished by the love and expressions of love, such as fondling and cuddling, that the baby receives from the parents, establishing in him an awareness of acceptance and belonging in his family. Its strength depends upon the ability of the parents and the other adults who play an important part in his life to treat him as an individual with respect for his rights as a person, to help him develop initiative and self-reliance, always with an awareness of his physical, emotional and intellectual limitations, but giving him the experience of learning that behavior which brings satisfactions, physical as well as emotional, must change as he grows older. He must be given the opportunity for successes, approval, and status development. This psychological weaning requires wise judgment, for too sudden thrusting of responsibility and self-dependence upon the child whose maturation level does not warrant it is just as destructive emotionally as is the overprotectiveness and infantilization by parents who are afraid to let their children grow up. Parents, too, are reacting to their own life experiences, and may because of their own needs and conflicts be unable to give the child the security he needs for healthy personality development.

The child whose emotional needs have been satisfied is able to obtain satisfactions and utilize his abilities effectively. He learns to handle situations with fairly consistent and appropriate behavior. He is reasonably free from mood swings, that is, he is neither unduly elated nor depressed. In other words, he is able to adjust to his environment. On the other hand, although the child whose needs have not been met adequately may be able because of fundamental stability to maintain his emotional equilibrium, most individuals

need the help of various adjustment mechanisms to achieve this equilibrium. These may consist of aggressive acts, rebelliousness, anger episodes, fear reactions, timidity, daydreaming, seclusiveness, overdependence on adults, rationalizations, compulsive acts, and a host of others. The child who feels inadequate and inferior may try to compensate for this and gain status with the group by becoming belligerent and aggressive, or he may find the situation too traumatizing and pull away from it through timidity and daydreaming. Phantasy then replaces reality because phantasy is far more pleasurable. An inability to establish good social relationships and gain class acceptance may precipitate similar behavior patterns. These are not consciously adopted by the child but develop out of his need to effect an adjustment, which though it be a poor one is nevertheless a solution of his problem. The seriousness of these reactions from the point of view of mental health, has to be judged individually. No one method can be universally condemned or justified. The important question to answer is whether they result in *maladjustments* which prevent a recognition on the part of the individual of the reality factors. Some adjustment devices, such as a rationalization about the value and pleasure of handiwork which enables a crippled child to engage in it with satisfaction instead of feeling the humiliation and inferiority engendered by watching a group of boys playing baseball, are valuable means of promoting emotional stability.

The aim of modern education and of mental hygiene is essentially the same: a well-adjusted child, integrated with his environment, making good use of his abilities and utilizing his potentialities. His education is not solely a preparation for adult responsibilities, but a process which aids him in his day-to-day living, recognizing that his ability to handle his adult adjustment depends almost completely upon how well he has learned to handle his childhood and adolescent adjustments. It is now accepted by modern educators that the development of habits and attitudes which will facilitate the child's total life adjustment is more important than the traditional emphasis on specific skills and information. It has been found that unmotivated acquisition of information makes but a transient impression on the child and that the

gearing of subject material to his natural interests and capacities, integrating it with the rest of his experiences, is far more effective. The modern school is aware that a child's learning ability cannot be isolated from his emotional status. The child, worried about something which has happened at home, beset with fears, or feeling completely inadequate, is often not going to be able to learn. Advice, scolding, or drilling will not remedy the situation. Knowledge of the factors producing the difficulty is necessary, plus a school situation reasonably free from the procedures which promote maladjustments.

The elimination of tensions in the classroom, together with the development of a teacher-child relationship based not on fear of authority but on awareness of a friendly, interested, impartial adult, not only prevents feelings of personal inferiority from developing but also sets the pattern of authority relationships.

Emphasis upon making the educational program an integrated part of the child's life utilizes the fact that from the day of his birth through childhood, adolescence, and adulthood, the individual is being acted upon and influenced by every aspect of his environment, and in turn is reacting upon it. It is therefore necessary to incorporate as much as possible of the child's experiences into the curriculum. School work then becomes part and parcel of everything else he does. It is carried over into the home, and parents are co-operatively involved in it. Parent interest in the mechanics of what the child is doing in school, using the family as a significant functioning factor in his school experiences, enriches both the child's relationship with his parents and with the school, fostering his adequacy and enhancing his security feelings.

Mental hygiene can be of service in helping to develop a sense of proportion regarding the seriousness of behavior disorders. Teachers still tend to overemphasize the seriousness of aggressive and hostile types of behavior. While not minimizing their disruptive effects upon the functioning of the classroom, more concern is needed regarding other types of behavior, such as marked timidity and asocial living, which while showing greater potentialities for emotional instability are not so forcibly thrust upon teacher consciousness.

Only within recent years has adequate rec-

ognition been given to the role that the teacher's personality plays in the success or failure of the educational program. Far more important than curriculum content, teaching methods, and the rest of the tangible aspects of the program designed to effect the end result of a well-balanced child, is the adequacy of the teacher's emotional adjustment. The well-adjusted teacher, with personal security and feelings of adequacy, is able to guide her pupils through their emotional weaning from home to their first adjustments to group living, to beginning awareness of abilities and limitations, and to authority. She is able to provide a classroom which is reasonably free from tensions, pressures, and rivalries. She can do this only if she is herself free from anxiety, is able to recognize and accept her own tendencies, and is aware of the extent to which teaching is satisfying her own needs. Then her own desire for achievement will not be carried out vicariously through the children in her class to such an extent that pressure is exerted for achievement, regardless of individual capacities. Dissatisfactions with her own life are not expressed in sarcasm, critical comments, inconsistencies in handling the children. Lack of adequate emotional or social satisfactions may result in the teacher's unwittingly satisfying her emotional needs through mothering the children, building up a relationship which will in effect retard their emotional growth. The teacher's rôle, except in rare situations, is not that of a parent substitute; rather is she the person who will help the child establish new, satisfying relationships with other adults on a friendly, comfortable, security-enhancing basis. She is aware that one of her functions is to lead the child out from the home patterns so that he can take his place adequately in the group, not to try to re-enact the home situation in the school. Teachers are at times hampered in the proper handling of behavior problems because they are not aware of their basis, incorrectly attributing their occurrence to their own teaching methods and handling. A safeguard against the development of anxiety about her own responsibility is the teacher's knowledge of behavior mechanisms and human relationships.

The teacher's need for adequacy, for success, and for a co-operative, comfortable relationship with her supervisors must not be

overlooked. In a period when there is considerable change in teaching techniques, the teacher is particularly subjected to pressures which may create conflicts about her adequacy, create insecurity feelings within her, and induce tensions which prevent her from functioning properly. She, too, has to be given consideration as an individual whose needs must be met if she is to provide the firm foundation upon which modern education is built.

G.M.A.

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MENTAL HYGIENE CLINIC — See CHILD GUIDANCE CLINICS.

MERCHANDIZING TRAINING — See DISTRIBUTIVE EDUCATION.

METAL ART WORK—See ART METAL WORK.

METEOROLOGY—See SCIENCE, TEACHING OF.

METHOD WHOLE—See HERBART.

METHODISTS, EDUCATIONAL ACTIVITIES OF THE. Methodism was born in a great university, Oxford, as the fulfillment of the dream of its scholarly founder,

METHODISTS, EDUCATIONAL ACTIVITIES OF THE

John Wesley. The educational policy of the American Methodist Church has been to provide necessary facilities for education, both institutional and otherwise. Final authority of the church in the educational field is vested in the General Conference, working through the Board of Education, which is organized in three major divisions, Division of the Local Church, Editorial Division, and Division of Educational Institutions. Any adequate description of the church's educational activities would include the organizational set-up through 105 annual conference and 40,000 local church boards of education, all of which must be omitted here. The normal educational machinery is intricate, but effective in its operation.

The first, and perhaps the most important, educational emphasis has been in the homes. This type of instruction seems to be the logical successor of the home school conducted by Susannah Wesley, the grandmother of Methodism, who religiously and systematically instructed her nineteen children. The next stage is now called religious education in the local church. It is not commonly known that the Sunday school, (the time-honored name), was launched by John Wesley even before the attempt credited to Robert Raikes, the generally recognized founder of the Sunday School movement.

Activities in the Local Church. The magnitude of the program in this field permits but a brief summary. In the 40,000 Methodist Sunday schools in the United States, 5,139,351, (1941 figures) persons are enrolled and taught by 502,427 volunteer workers. More than 1,200 schools for workers were conducted in 1942. Knowing the importance of parents as teachers of religion, these workers give large place to teaching future home makers. Increasing thousands of boys and girls attend week-day schools of religion, in connection with the public school year, and larger and growing numbers attend vacation church schools. The Methodist Church, with its ecumenical outlook, cooperates with other denominations, working in the International Council of Religious Education and other joint agencies by which it seeks to reach all races and nationalities.

Briefly stated, the church works toward the following goals through Christian education: (1) to foster a consciousness of God, (2) to develop an appreciation of Jesus and

his program for life, (3) to foster a continuous development of Christian character, (4) to develop persons into builders of a social order based on the fatherhood of God and the brotherhood of man, (5) to lead persons to become part of the church, (the organized society of Christians), (6) to produce an appreciation of and participation in the Christian family, the primary social group, (7) to lead growing persons to a Christian interpretation of life, seeing in it God's purpose and plan, with a philosophy of life built on this foundation, (8) to assimilate the best religious experience of the race, as undergirded in the Bible, leading to a satisfactory personal experience.

The Division of the Local Church is charged with responsibility in this field of activities. It is closely allied with the Editorial Division, which produces literature, periodicals and supplies needed for this service.

Institutional Education (The work of the Division of Educational Institutions.) The first venture in this field, Cokesbury College, located at Abingdon, Maryland, opened in 1787. The college operated with a fair degree of success until 1795, when the building was destroyed by fire. Upon confirmation of the news of the fire, Bishop Asbury expressed his conviction in the following sentence recorded in his journal, "The Lord called not Mr. Whitefield or Methodists to build colleges." Although the second Cokesbury, Baltimore, Maryland, burned in 1796 and the third Methodist college, the first chartered Methodist college in the world, Asbury in Baltimore, lived only a few years, the decades following the unfortunate endings of these first attempts do not afford evidence to substantiate Asbury's conclusion.

As in the field of erecting houses of worship, where the church followed, or sometimes almost preceded successive waves of pioneer population, so educational institutions were established within rather easy access to the church's constituency. The General Conference of 1824 voted to establish a college in every annual conference, declaring, "The church college is the bulwark of the church." This type of educational service was both important and generally successful for that day. Such activity, which ended with pioneer days, produced more institutions than were needed or could exist

MEXICO, EDUCATION IN

permanently. One historian says, "Randolph-Macon in Virginia, (1830), and Wesleyan, Connecticut, (1831), are considered the 'parent institutions' of the church." (Both are outstanding colleges now.)

The records of the Methodist Church list two hundred schools and colleges founded between 1835 and 1860. By the end of 1870, three hundred institutions had been established by the church, not more than one hundred of which still survive as Methodist. Educational activities in the church increased rapidly following the Civil War. Many colleges and universities, some of which continue to be among the best today, including Drew Theological Seminary, (now expanded into Drew University), 1867; Boston University, 1869; Syracuse University, 1870; Vanderbilt University (later becoming an independent institution), 1875; and others were established in this period. Important institutions have started since that post-war wave, but never in large numbers. In some cases progress was made by way of mergers and consolidations of institutions.

All branches of the Methodist Church have been active in their educational programs. Certain lines of work are mentioned here because they are characteristic of Methodists in general and, in essentially the same form, have survived both the strain of separation and the victory of unification. In 1866 a centenary educational fund totalling \$65,829.72 was raised. Of this \$56,674.40 was for the Children's Sunday School Fund and \$9,155.32 for the General Education Fund. Among the important by-products of this centennial observance were the establishment of the Board of Education, the starting of the Methodist Student Loan Fund, largely supported by Children's Day in the Methodist Episcopal Church, and the founding of the Freedmen's Aid Society. Since its beginning the Loan Fund has assisted more than 60,000 students through loans totalling over \$9,000,000. The Freedmen's Aid Society, and the successor board, have sponsored many strong institutions for Negroes, (14 at present), and various other educational activities.

The Board of Education, somewhat differently organized since the union of three branches of Methodism in 1939, continues earlier activities in addition to many new

features in the total educational program of the church.

Through the years the Methodist Church has operated or sponsored no fewer than 900 educational institutions of all types. Today there are 127 educational institutions related to the Board of Education of the Methodist Church, including 10 schools of theology, 9 universities, 67 senior colleges, 25 junior colleges, 11 secondary schools, and 5 of miscellaneous classification. These institutions represent an investment of more than \$400,000,000.

The educational activities of the church include a well organized Department of Student Work, the underlying philosophy of which is "the church follows its students." There are 110 Wesley Foundations, 100 organized student centers and over 200 other student groups through which the religious life of 200,000 Methodist students is given careful consideration to help them into the best possible experience of well rounded enlightened Christian character and living.

In addition to the above, current statistics indicate that the Board of Missions and Church Extension of the Methodist Church operates 360 schools in foreign lands and 37 in the United States. Included in the group are 8 universities, 35 colleges, 260 high schools and 93 professional schools.

The educational program of the Methodist Church is comprehensive and inclusive. It comprehends the entire academic field with as good institutions as are found in the world and the total sweep of religious and character education. It includes all who make up the constituency of the church, approximately 20,000,000. Not only does it include them all numerically, but it provides for adequate instruction and training in every area of their lives, from the cradle to the grave. H.W.M.

MEXICO, EDUCATION IN. The educational development of Mexico may be traced back to pre-Columbian times. The Aztecs had well-established centers of learning for both boys and girls. While these centers exercised an important influence upon Indian life prior to the Conquest, the coming of the Spaniards in 1519 brought about their complete destruction; modern education in Mexico reflects no direct response to those indigenous institutions. However, the cultural significance of the former existence of such

MEXICO, EDUCATION IN

schools is not to be overlooked, because the fact that the native peoples had attained this level of development has important implications for subsequent educational events during colonial days, in the nineteenth century, and, more particularly, during the twentieth century.

The founding of the first schools by the Spaniards immediately after the Conquest was a remarkable achievement in modern education. Fray Pedro de Gante, a Franciscan, opened a school at Texcoco for Indian children in 1523. Later, in 1526, he organized the great school of San José de Belén in Mexico City, also for Indians. The first institution of higher learning in the New World, El Colegio de Santa Cruz de Tlaltelolco near Mexico City, was founded in 1536 for Indian boys. The oldest institution of higher learning in the New World, now the preparatory school of the University of Michoacán at Morelia, *El Colegio de San Nicolás Hidalgo*, was founded by Bishop Vasco de Quiroga for both Indians and Spaniards in Pátzcuaro in 1540 as *El Colegio de San Nicolás Obispo*. The Royal and Pontifical University of Mexico, founded by the decree of 1551 and opened in 1553, has now become the Autonomous National University of Mexico. The old *Colegio de San Ildefonso*, organized out of several existing institutions around 1572, has become the National Preparatory School of the University of Mexico. In 1573, *El Colegio Mayor de Santa María de Todos Santos*, an endowed post-graduate and post-doctoral center of studies, was founded in Mexico City. This institution, like *El Colegio de San Juan de Letrán*, a school for *mestizos* which was founded in 1547, and several others of the sixteenth century schools, passed out of existence in the nineteenth century.

These schools, together with many others established in Mexico City and other parts of New Spain during the three centuries of the colony, constitute the foundations of Mexican education. The schools, largely church and church-state enterprises, passed through a golden age of development in the sixteenth century, becoming increasingly restricted in intellectual scope and outlook during the next two hundred years until, in the first half of the nineteenth century, they had become so formal and narrow that they fell into decay and most of them were closed. It was then

that Mexico, under the stimulus of recently acquired (1821) political independence, began to give serious consideration to state-supported public education. However, even though some schools were established and both legislation and public opinion favored extensive public education, the unsettled state of affairs that prevailed from 1821 until the expulsion of the French in 1867 prevented the organization of a system of schools.

In 1867, the National Preparatory School was founded on the ruins of the old *Colegio de San Ildefonso*, setting a pattern for secondary education which has spread throughout the nation. From 1867 on, both the state and national governments gave increasing attention to education. Vocational, normal, secondary, and higher schools were created in various parts of the nation and primary education became more widespread—the Federal government supporting activities in the Federal District and in the Territories; the state and municipal governments in their respective areas. These developments in the latter part of the nineteenth century and before 1910 were, nevertheless, inadequate to meet the needs of the nation and reached only a small, select sector of the population. In 1906 there were fewer than 800,000 students in all public and private schools in Mexico (less than 5 per cent of the nation's population) and 85 per cent of the people were illiterate.

The reestablishment, in 1910, of the National University, which had been suppressed in 1865, marks the beginning of a new interest in higher education and of new growth in centers of higher studies everywhere in the country. The Revolution, 1910-20, delayed this development but, since 1921, rapid strides have been taken at all levels. In 1929, the University became autonomous though its annual federal subsidy of \$3,000,000 (pesos), made through the Secretariat of Public Education, is still continued. The other universities are *Universidad de Michoacán*, Morelia, Michoacán; *Universidad de Yucatán*, Mérida, Yucatán; *Universidad Oficial de Guadalajara*, Guadalajara, Jalisco; *Universidad Autónoma de Guadalajara*, Guadalajara, Jalisco; *Universidad de Puebla*, Puebla, Puebla; *Universidad Socialista de Culiacán*, Culiacán, Sinaloa; *Universidad Obrera de México*, Coyoacán, D. F. In addi-

MEXICO, EDUCATION IN

tion to these schools there are numerous other centers of higher learning throughout the nation. The Secretariat of Education maintains a Polytechnic Institute in Mexico City. This school is made up of several vocational schools (grades 10-11), enrolling some 2,700 students, and six higher technical schools with more than 2,500 students. In 1939, the higher educational institutions granted 3,023 professional degrees, 56,595 such degrees having been granted since 1901.

The Secretariat of Education operates 26 rural normal schools (4 of a higher elementary and 22 of a secondary level) which enroll 3,263 students. The National School for Teachers in Mexico City, under the Secretariat of Education, is a post-secondary school enrolling 1,234 pupils. In addition, state-supported normal schools are found in virtually every state capital and large center of population in the nation.

Since its establishment in 1921, the Secretariat of Public Education has gradually taken over most of the burden in elementary and secondary education in the nation. Public schools of eleven states (and of the Federal District and the three Territories) have been federalized and, in the other seventeen, the national government operates many schools alongside those supported and administered by the states. The national government, through its several departments but principally through the Secretariat of Education, spends more than \$90 million (pesos) annually for education; the states and territories more than \$45 million (pesos). The budget of the Secretariat of Education in 1941-42 was \$77,850,000.00, or 15.79 per cent of the total federal budget.

Elementary education (*escuelas primarias*) in Mexico covers grades 1-6, inclusive; secondary education (*escuelas secundarias* or *de segunda enseñanza*), covers grades 7-9, inclusive; and vocational and college-preparatory education, offered in the *escuelas vocacionales* and *escuelas preparatorias*, respectively, covers grades 10 and 11. The national government supports 13,358 primary schools; the states and municipalities, 7,420. In addition, 977 are maintained by state-federal support, 991 by industries in compliance with federal law, and 445 are operated through private initiative. These schools are taught by 46,653 teachers and enroll 2,037,870

pupils. Most of these schools have night classes for adults and, in addition, there are 91 federal schools for adults with 488 teachers and an enrollment of 8,760. Some thirty-five residential schools for Indians are maintained by the Federal Department of Indian Affairs.

The Federal government maintains 251 *escuelas secundarias* (with either pre-vocational, vocational, academic, or agricultural curricula at 7-9 grade level) with an enrollment of 43,984. There are no recent figures on either vocational or preparatory (grades 10-11) schools. It can be estimated that the enrollment in the former is less than 25,000 while, in the latter, the enrollment is probably in the neighborhood of 15,000. Schools of this level are found in various parts of the country—in connection with higher schools, as private schools, or supported as common schools by the states or by the Federal government. Their number is increasing rapidly.

Since 1921, the schools of Mexico have been characterized by realism and by a social philosophy of education. Rural education and the education of Indians have been pointed to the solution of the immediate, vital problems of the common people—health, subsistence agriculture, literacy, national and indigenous languages, and the like. Primary and normal schools everywhere are giving increasing attention to current social and economic problems as well as to Mexican culture. Much of secondary education emphasizes vocational preparation. The universities and other centers of higher study, though still emphasizing literary curricula, are rapidly developing scientific laboratories and technological programs. In all of these developments can be seen the expression of the two dominant, traditional tendencies of Mexican educational endeavor: the academic, humanistic, and theoretical education inherited from the Renaissance; and the realistic education inaugurated by such sixteenth century educators as Fray Pedro de Gante and Bishop Vasco de Quiroga, carried out in higher schools to a limited degree by the Jesuits, revived to some extent in the educational reforms of the nineteenth century, and given primary stress in the educational awakening resulting from the Revolution of 1910-20. These two tendencies, if properly correlated, give promise of evolving into a

highly attractive program of balanced intellectual and cultural development in Mexico.

G.I.S.

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MIGRANT CHILDREN—See TRANSIENT CHILDREN.

MILBANK MEMORIAL FUND — See FOUNDATIONS, PHILANTHROPIC.

MILITARY EDUCATION. In the United States, the official training of our citizens in military skills for military purposes has not been an integral part of national practice. The idea that wars could be fought by farmers and tradesmen who took their muskets from the pegs over the mantelpiece and marched forth to defend their homes under command of the local merchants and lawyers has tended to be the American ideal of military education precisely because the traditional American theory of the perfect state has not allowed for a large standing army. Americans have entered upon their wars depending for the mass of their forces on their citizen army, civilians trained and equipped after war has been declared. However, such theory and practice have seldom survived without modification a critical period of large-scale conflict with other nations. World War I brought changes. World War II may shift our ideas of military education to a new center of gravity.

The complexities of modern warfare make the farmer-into-soldier ideal impractical, and require that the soldier be a specialist, but the basic theory of a citizen army is part of the fabric of American thought and is embodied by the War Department of the Federal Government in its published Army Regulations.

The Citizen as a Soldier. With America's entrance into the Second World War, December 8, 1941, theoretical considerations were cast aside and the Government, largely supported by public opinion, set about to

create an armed force adequate to a conflict which involved whole populations and ranged over the whole land, water, and air surface of the earth. This called for a program of education, the largest and most complex of its kind ever undertaken in America.

The framework for this training program had been provided by legislation passed by Congress during and after World War I. The National Defense Act of 1916, as amended in 1920, authorized a broad program of civilian military training, to run parallel to the concentrated training provided by the Regular Army for its members, instruction to be given by Regular Army officers, and the whole system to be under the jurisdiction of the War Department. The Act was designed to provide some military training for a part of the civilian population, with the object of creating a reserve of trained officers and men to assist with mobilization of man power in time of war.

Because national interest in military training is naturally stimulated by war, legislation for military training has closely followed the first years of our chief military conflicts. The Morrill Act of 1862, when it authorized grants of land and Federal aid to establish colleges for agriculture and the mechanical arts, specified that military drill should be included in the curricula. The Act of 1920 provided for the establishment of a Reserve Officers' Training Corps unit in every land-grant college, and in any other educational institution of college or secondary school level which would insure the enrollment in such a unit of not less than 100 members. An officer of the Regular Army was to be assigned to each unit as Professor of Military Science and Tactics. The Federal Government was to provide arms and equipment to be used for purposes of instruction.

This Act has served adequately as originally envisioned. The course consists of three hours of instruction and practice a week in basic citizenship and the fundamentals of military discipline and drill. If the student desires to continue his training, there is an advanced course, two years of approximately five hours a week. Upon completion of this advanced course, and with an additional six weeks' training at a summer camp course, the student may receive a commission in the Officers' Reserve Corps, from which he will, in

MILITARY EDUCATION

time of war, be absorbed into the Army of the United States.

At first most of the ROTC units were infantry, cavalry, or artillery, but gradually some schools added signal and air corps units as well, and the establishment of medical, dental, and veterinary corps units was authorized by Acts of Congress of 1919, 1920, and 1924. The National Defense Act also authorized the establishment of Citizens' Military Training Camps to provide short summer training courses for non-college students.

Another organization which provides auxiliary military strength is the National Guard, which is supported jointly by the Federal Government and the several states. Citizens belonging to the National Guard receive approximately 90 hours a year of military training in Armory drill and field exercises, plus many correspondence course hours. The National Guard of each state as a whole is subject to call by the Governor in case of riot or insurrection within the state.

All these auxiliary military organizations are subject to call to active duty by the President. In time of war they combine with the Regular Army to form the Army of the United States.

In peacetime the instructors for all these organizations are officers of the Regular Army. In wartime, or during periods of emergency, these are replaced in part by Reserve officers.

In the two decades after World War I, there was in the United States widespread popular revulsion against military training. Public opinion was affected by the controversies that arose over the status of the ROTC courses in various colleges and universities. The law, as generally interpreted, made two years of military training compulsory for the students. In practice, "drill" frequently took the place of what was then generally considered a well-rounded program of physical education, and, in so far as "drill" did not provide a balanced program, there was a legitimate cause for the disapproval of educators and public. The controversy continued to grow. The whole premise underlying the military training of civilians was called into question by some teachers and their followers. The ideals and methods of the Department of Military Science and Tactics were believed by

a vociferous group to be inconsistent with the liberal humanist aims of higher education. [The Supreme Court of the United States, in passing upon the constitutionality of compulsory military training in colleges and universities, under the provisions of the Land Grant Act, decided that such military training was a proper requirement and could be enforced by the university authorities. (*Coale v. Pearson*, 290 U.S. 597; *Hamilton et al. v. Regents of the University of California*, 293 U.S. 245, 1934.)] Greater attention by the War Department to the course of study brought about many improvements in both the interest and value of the instruction given. The "compulsory" status of the law was challenged by several universities, and removal of this clause, by amendment in 1936, eliminated much of the basis for argument. In spite of some opposition in academic circles, the ROTC units continued to turn out an average of 6,000 graduates a year, who were granted commissions in the Officers' Reserve Corps, and who, at the time of the Second World War, were almost immediately absorbed into the Army of the United States.

Military Education within the Armed Forces. In time of peace the Army has its own task to do—great programs of civil engineering and mass sanitation, and important investigations and projects concerned with the raising and maintaining of standards of health and convenience of intercourse within the nation as a whole. Members of the Regular Army, in addition to being soldiers, are specialists in many fields. They may be engineers and lawyers, research scientists and doctors; they may be experts in supply or transportation, or specialists in finance or personnel management. Thus, it is obvious that the Army must maintain a comprehensive system of education within its own ranks. It must be a flexible system, in which training for specifically peacetime objectives may be quickly converted to military purposes in time of war.

The naval branch of the military system has its peacetime jobs as well, in assisting international communication and trade, adding to the scientific and practical knowledge of navigation, and protecting and policing the outlying possessions and territories of the United States. The Navy, in order to carry out its program, conducts schools and train-

MILITARY EDUCATION

ing courses for its personnel, always with a view to supplying the type of training which will best equip this fighting branch for the rôle it may be called upon to play under peacetime conditions and during hostilities.

The primary sources of trained officers for the regular peacetime Army and Navy are the two great academies the United States Military Academy at West Point, New York; and the United States Naval Academy at Annapolis, Maryland. The prestige of the American academies is as great as that of any comparable institutions in the world. Students come from all walks of life, and appointments are made on a geographical basis of popular representation of the whole nation.

The course of study at West Point is the same for all students, and emphasizes, outside of the regular tactical and allied military subjects, mathematics and modern languages. Annapolis stresses languages even more than does West Point. Both schools provide constant instruction in the actual practices and techniques of military and naval warfare.

Upon entrance to these two schools, the students become charges of the Federal Government, under the aegis of the War Department and the Navy Department; and must agree to serve, in the case of the Army, for four years after graduation; in the Navy, for two. Academic and physical standards, both for entrance and for graduation are high; the students are at all times under strict military discipline; and the traditional attitude of the graduates is one of service for loyalty to the Federal Government. Graduates of West Point are commissioned as Second Lieutenants in the Army; those of Annapolis, as Ensigns in the Navy.

Secondary sources of officer-material are the old-line military colleges, such as The Citadel in South Carolina, The Virginia Military Institute, and Norwich University in Vermont. These schools are not under the jurisdiction of the War Department. Their graduates, therefore, do not go automatically into the armed service; they have, however, active departments of military education; and they provide a steady stream of officers for the Officers' Reserve Corps, for the National Guards, and in some cases for the Regular Army. The university and college system, especially in land-grant colleges and universities, has been another major second-

ary source of such officer material, one of the most important of which has been the Agricultural and Mechanical College of Texas at College Station, Texas. In fact, it may even be said that in time of war the university and college system becomes the primary source of trained officers for the armed forces of the country, except in so far as providing general and flag officers is concerned. Throughout the nation's history a tertiary source of material has been such essentially military academies as Culver, Staunton, Wentworth, San Diego Army and Navy, and New Mexico Military Institute.

The other major unit of the armed forces of the United States is the Marine Corps which serves as a collateral branch of both the Army and the Navy, although its loyalties and traditions are more closely connected with the Navy than with the Army. Technically, a marine is a "sea soldier" and from the earliest times when the early colonists were of necessity a sea-going people, the marines were organized for both land and water operations. Combat versatility and initiative have distinguished the Marine Corps ever since. As such, the Marine Corps has frequently been an agent of the Department of State. In addition, it has served as a police force, or as a colonial army, for all American possessions and spheres of influence. Many Marine officers are trained at Annapolis and by virtue of the close alliance with the Navy and the nature of their combat operations the two services must be integrated and inter-staffed to a high degree. On the other hand, in most major conflicts Marine regiments have served with the Army. Consequently, their training program somewhat parallels that of the Army, and Reserve officers for the Corps are trained in part through ROTC units maintained by colleges and universities. As in the case of the Army and Navy, once in the service, Marine officers and enlisted men attend special service schools at such places as Quantico, Virginia; and New River, North Carolina.

Men who join the United States Army, either as officers or as enlisted men, are apt to find that however much education they have had before, a new school career has only just begun. For example, a young officer who has been commissioned in the Infantry or Field Artillery will be assigned to duty with

MILITARY EDUCATION

his regiment, or separate battalion, and in normal times will spend from two to five years at an Army station, assisting in the training of enlisted men, or fulfilling other general duties assigned to him by his commanding officer. Then he may go, for review and advanced study, to the special service school of his own branch, such as the Infantry School at Fort Benning, Georgia. Next, if his record and capacities warrant it, he may be detailed to attend one of the General Service Schools, such as the Command and General Staff School, at Fort Leavenworth, Kansas, where the course of study aims at training officers in command and general staff duty, and in the integration and coordination necessary to make all branches of the armed forces act together effectively. Then, after a peacetime service of seventeen or more years, the officer, having achieved the grade of major or lieutenant colonel, may be appointed Professor of Military Science and Tactics, in charge of an ROTC unit at some university; ordered on a tour as instructor with National Guard units anywhere in the country; detailed to the Army War College or Army Industrial College for higher command or staff postgraduate work; or quite possibly he may serve with troops or other Regular Army installations in a command or staff capacity. In time of war both the Special Service Schools and the Command and General Staff School provide refresher courses.

The enlisted man in the modern army must also be a specialist. Under the procedure adopted in World War II, after a three-month basic training period at a Replacement Training Center, the new private, on the basis of intelligence and aptitude tests, with additional classification data as to his personal background and civilian experience, may be assigned to a special service school, of which there is one for every branch, new and old, of the armed service. He may be sent to the Field Artillery School or to the Radio Communications branch of the Signal Corps School; or if he has had, for example, civilian experience in personnel management or machine record work, he may be sent to The Adjutant General's School for special courses, or to take an Officer Candidate course, upon completion of which he may be granted a temporary commission in the Army of the United States. Some of these special service

schools were an outgrowth of the changes in methods of warfare since World War I and were established to create units properly trained for the tempo of World War II. Still another class developed by the tempo of World War II was the short orientation-type courses which were conducted by some arms and services such as The Inspector General's Orientation School at Washington, D. C.

Not unlike the training program for the Army, the training program for Naval personnel who have been two years at sea has provided additional officer training for selected personnel, such as those programs found at the Submarine School or the Torpedo School. Following a period of six or seven years' sea duty, officers become eligible for such postgraduate instruction at the United States Naval Academy as the line course, naval radio, ordnance, aeronautics, naval architecture, or mechanical engineering instruction. Such courses have been supplemented frequently by detailing officers directly to specialized courses in engineering, ordnance, fire control, metallurgy, explosives, torpedo design, naval construction, or civil engineering at such civilian technical colleges or universities as Massachusetts Institute of Technology, Carnegie Technical Institute, California Institute of Technology, Rensselaer Polytechnic Institute, and Harvard or George Washington Universities, the University of Michigan, and Babson Institute. As in the case of the Army, the Navy has provided for postgraduate work, the Naval War College being located at Newport, Rhode Island. World War II greatly augmented the number and types of schools available and eliminated, at least temporarily, many of the normal officer details for further technical training, which may be said to be the order of expectancy during peacetime training procedures. Training of enlisted personnel, ashore and afloat, has been provided by the Navy through its Bureau of Navigation or by programs sponsored by the Chief of Naval Operations. Ashore, the training of Naval enlisted personnel has been grouped under three classes of service schools with complete training programs at various points, such as San Diego, California; Norfolk, Virginia; Great Lakes, Illinois; Washington, D. C.; Lakehurst, New Jersey; and Pensacola, Florida.

MILITARY EDUCATION

Other types of schools have been maintained and administered aboard ships of the fleet.

Training for Modern War. The need for increased mobility has been recognized, the lessons of battles on all fronts are absorbed, and the Army has been "streamlined for action." The tempo of World War II created an immediate action situation which has been recognized by all the armed forces, as indicated by extensive and intensive training schedules. For example, primary attention has been given by the Army to the military education of the personnel of the Army Air Forces through their many special training command schools, including flying training command schools, technical training command schools, and the school of aviation medicine. In general, these schools provide trained personnel for manning military aircraft, including pilots, glider pilots, bombardiers, navigators, observers, and aerial gunners. In great numbers, parachute troops and commandos have been trained, the latter in both the Army and the Marine Corps. In addition, comprehensive training has been given to those inducted into the Army at Induction Stations and sent to Replacement Training Centers so as to insure that the men were assigned to those units for which their previous skill or knowledge best fitted them; in addition, as a result of this course, those who demonstrated unusual abilities and aptitudes have been selected for further training at Officer Candidate Schools for possible commissioning as future leaders.

A great deal of emphasis in modern military education has been placed on the use of training films. They have been found to be an excellent medium for training large groups of men in limited periods of time.

Under World War II policies, civilian facilities have been used wherever their use would save time and construction and accomplish the same training objective. Approximately 400 such civilian schools, including factory schools, trade schools, colleges, and universities, have been used to give instruction to military personnel. All matters pertaining to their use have been coordinated through the appropriate staff agency which has prescribed major policies such as the character, length, location, content, and texts of the course. Civilian schools have also been leased for dormitories, mess facilities, class-

rooms, offices, and drill fields. The Army has furnished the training aids and instruction. This has been done at Harvard for the Chaplains, Princeton for Army Exchanges, and Duke University for Finance. Surveys were made constantly to determine available school facilities. Once the training programs got under way, a constant check was maintained to insure the proper fulfillment of all training objectives.

Likewise, in time of war, all sources of manpower must be integrated under the exigencies of total war conditions, including the education attainments of all trained persons who virtually serve as a reservoir of strength upon which to draw wherever and whenever circumstances require their use. This has been accomplished in part by temporarily commissioning eligible specialists with or without previous commissioned service in the Army of the United States.

As in other periods of American history, women appropriately trained and organized have participated; the organization of the WACS and WAVES [Women's Army Corps and Women Accepted for Volunteer Emergency Service (Women's Reserve of the United States Naval Reserve)] are typical of the auxiliaries which have released men for combat duty.

In time of war, therefore, the armed forces need and get the services of innumerable types of men and women for a wide diversity of jobs. Public opinion in America has shown itself to be in favor of this. How much change World War II has made in our basic national attitude toward military education as an instrument of national policy is yet to be determined. The change may be profound.

Despite some critical evaluation of the progress which has been made in the large-scale training programs in all branches of the Armed Forces, it may be said that a scrutinizing impartial evaluation of the total training program evolved by World War II has shown tremendous strides toward satisfactory training, under conditions fraught with difficulties despite the cooperative public attitude and a military leadership which recognizes the imminent necessity of putting that virile declaration of Theodore Roosevelt into action: "Cut the chat and dig the ditch!" In brief, then, the military education and training of the American soldier, sailor, and

MILK SERVICE IN PUBLIC SCHOOLS — MINIMUM ESSENTIALS

marine during this period have continued to receive the constant attention of those charged with the responsibility of welding into shape an efficient and victorious fighting force—a force fully cognizant of its rôle in the struggle of civilization to maintain itself. G.F.M.

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MILK SERVICE IN PUBLIC SCHOOLS.

Many elementary schools provide milk for the children enrolled. The primary objective in serving milk is to improve the health of undernourished children. However, the milk may be supplied to children other than the undernourished.

The milk is usually served in the morning about midway between breakfast and the luncheon period.

Practice in supplying the milk varies widely in the different schools. In some schools the children purchase their own milk. In other schools milk is furnished without charge to those pupils needing milk, but who are unable to pay for it themselves. O.G.J.

MINIMUM ESSENTIALS. The original "minimum essentials" in education were considered to be the 3 R's—reading, writing, and arithmetic. As schools developed and knowledge expanded, additions were made to the curriculum without much thought of a fundamental reorganization.

The movement to determine minimum essentials grew out of curriculum thinking in the early 1900's in order to bring about reorganization and simplification of a curriculum which had developed by the accre-

tion of new subjects and new subject matter.

In the preface to *How to Organize the Curriculum* (1923), Charles A. McMurry says:

"The elementary curriculum has expanded in recent years into a huge collection of knowledge and of activities. Nearly all the subjects suitable for children and some others have been gathered from all sources until both teachers and children are overloaded with these bountiful gifts. At present they are staggering under the load.

"The last thirty years has been a period of almost reckless expansion of common-school studies into all the new and old realms of experience. It may require the next thirty years to sift out and to organize these accumulated treasures.

"Our problem is that of selecting and combining the best and most essential influences into a simple program which will promote the continuous educative growth of children through the school period."

Responding to this general feeling, educators attempted to determine the minimum essentials. This did not call for a reorganization of subject matter but rather for a selection of those items that seemed to be most necessary and essential. As a result, minimum essentials were selected in practically every subject field—especially in the tool subjects such as spelling and arithmetic. Efforts were made also in a number of courses of study to interpret minimum essentials in terms of understandings.

The approach to curriculum reorientation through the elimination of nonessentials, however, did not materialize into an effective movement. This was due, in part, to conservative influences, which kept old subject-matter programs intact and resisted the development of newer materials. Likewise, fundamental curriculum orientation could not be achieved merely by the lopping off of topics and the pruning of subjects. McMurry further criticized the movement as follows:

"This quantitative reduction of subject matter in studies to minimum essentials has also a powerful tendency to end rather in a collection of dry abstractions, and these properly joined together furnish us with the 'grinning skeleton' of a course of study...."

The minimum essentials movement gave little consideration to a fundamental consideration of curriculum aims, purposes, and directions. The factors involved in attempting to think through this problem are indicated in a statement from the *Fourteenth Yearbook* of the National Society for the Study of Education:

"If it is impossible to discover from educational theory fundamental tests for exclusion and inclusion, we are driven to the method of determining

MIXED RELATIONS TEST — MODERN FOREIGN LANGUAGE "STUDY"

minimum essentials on the basis of the best current practice and experimentation which give satisfactory results. Those results are satisfactory which meet adequately the common needs of society. This in the main is the method employed in the investigations upon which the following reports in the yearbook are based."

An outstanding example of an effort to organize a course of study on the basis of minimum essentials is that developed by a Committee of Superintendents in the State of California under the direction of Ernest C. Moore. The Committee approached its problem by asking, among other things, these questions:

"What parts of it (your subject) are of first-rate importance, as distinguished from the parts of it which are only of second-rate or third-rate value? What are its essentials? We ask you to skeletonize it, to outline its minimum essentials."

The result of the work of this committee was a sizable volume which, for the most part, outlined subject-matter content. On the other hand, some recognition was given to other values since, in the section on geography, it is stated: "It is not facts, but system of facts, which constitute minimum essentials in geography."

Many courses of study included a statement of minimum essentials during the period 1920-30. Since 1930, however, the term has not been in general use. Dr. William C. Bagley headed a group known as "The Essentialist Committee for the Advancement of American Education." Dr. Bagley's protest was against what he considered to be "the disparagement of system and sequence in learning and a dogmatic denial of any value in, even of any possibility of learning through, the logical, chronological, and causal relationships of learning materials." A consideration of the view presented by Dr. Bagley indicates that his concern is primarily, however, for "the need of common elements in the basic cultures of all people especially in a democracy." The point of view expressed by the essentialist is much broader than that proposed by the original minimum-essential group, and in a measure serves to indicate a change in thinking as to what is considered essential. Any canvass of the field reveals a broadening concept of the curriculum. It is more generally recognized that the aims of education can be achieved through many types of materials and activities.

The term minimum essentials has been re-

placed largely by "functional subject matter," wherein an effort is made to develop educational experiences which will assist the individual in the control of his environment and, at the same time, insure the knowledge, skills, attitudes, and appreciations for creative living.

W.H.B.

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MIXED RELATIONS TEST—See OBJECTIVE TESTS AND EXAMINATIONS.

MNEMONIC DEVICES. Mnemonics refer to any device or system for assisting or improving the memory (*q.v.*). Thus, the names of the Great Lakes are more easily recalled by the pupil who remembers that their initials spell the word *homes* (Huron, Ontario, Michigan, Erie, Superior). Devices are sometimes sanctioned when the material is factual and without possibilities for association, as when the teacher tries to get children to remember the correct spelling of *hear* and *here* by thinking of *hear*—ear and *here*—there. Psychologists, however, hold that mnemonic devices are not so effective as are understanding, meaningful associations, the will to remember, and spaced recall. Devices are only crutches which should be used sparingly, and then only in cases of artificial and arbitrary items. As curricular materials become more meaningful and significant to children, there is diminishing emphasis on artificial mnemonic devices.

F.A.B.

MODE—See CENTRAL TENDENCY.

MODEL LESSON—See DEMONSTRATION TEACHING.

MODERN FOREIGN LANGUAGE "STUDY." The wave of influence of the "direct method" (*q.v.*) in the first two decades of the 20th century, combined with the conflicting experiences of World War I regarding the foreign language skills of our soldiers,

MODERN FOREIGN LANGUAGES, TEACHING OF

began to raise serious doubt among foreign-language educators as to the efficiency of existing teaching methods in this field. Consequently the American Council on Education was requested to organize a fact-finding investigation into the status of the teaching of modern foreign languages. In 1924, taking the name *The American and Canadian Committee on Modern Languages*, a large committee was formed to cover the United States and Canada. Subcommittees were set up in every region in the country and operating funds were obtained from the Carnegie Corporation of New York. Coleman² wrote the basic volume of the whole investigation, interpreting the data from thousands of questionnaires and from the extensive survey of student abilities by tests, setting up lists of valid objectives, and making recommendations for future curricula. There were, in addition, twelve volumes of reports on teacher training, enrollments, achievement and prognostic testing, and reading skill; and six volumes of frequency word and idiom counts for French, German, and Spanish.

The standardized tests created by the "study" have been used by hundreds of school systems and are still valid. The frequency counts have affected, especially at elementary levels, most of the textbooks produced since their appearance. Most important was the recommendation, although not unanimously endorsed, that the short two-year course—which, it was found, was the term of study of fully 83 per cent of high school registrants—emphasize the skill of reading for comprehension, with all others skills made ancillary to this central aim. In spite of spirited debates on the part of proponents of the oral approach, the reading aim has been adopted widely by state and city syllabi and courses of study. Both foreign language authorities^{4,5} and educators¹ have endorsed the aim as the most likely solution to foreign language curricular problems. The work of the "study" is being continued by the Committee on Modern Languages of the American Council on Education, which has expanded its activities to include consideration of problems in the teaching of English as a foreign language, continuation of the work of the study in preparing bibliographies of modern language teaching, continuation of the work on standardized tests, and the mak-

ing of syntax frequency counts in the major foreign languages.

J.B.T.

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MODERN FOREIGN LANGUAGES, TEACHING OF. In earlier times languages were "picked up" by mouth-to-ear tutorial means, even when the oral use of Latin as an almost universal auxiliary language gave the name Latin Quarter to a section of Paris inhabited by students from all quarters of the globe. Since then the grammarians have coded the rules and a grammar-translation approach to learning the classical languages transferred its deadening yoke on to the modern languages as they began to be more and more widely studied, first in colleges, then in schools.

The first "reform" came in Germany in 1880 when Viëtor issued his pronunciamento that language teaching should about-face from grammatical technicalities to a living approach, with phonetic treatment of pronunciation. The pendulum swung to the Natural Method, espoused by Dr. Sauveur in the U. S. There was the Ollendorf method of question-answer (but via translation from the mother tongue following grammar study) and the Gouin "series" method of organized sequences of actions (such as verb-study by the step-by-step actions of entering a room through a door). The Direct Method (*q.v.*) could be called a schoolroom adaptation of various features of these methods, with emphasis on direct comprehension of vocabulary in oral language, with inductive learning of grammar and phonetic help in pronunciation.¹

The Report of the Committee of Twelve⁷ of the Modern Language Association of America in 1898 described and evaluated the existing methods in secondary schools but in general accepted the four-fold aim of giving somewhat equal stress on speaking, writing, aural

MODERN FOREIGN LANGUAGES, TEACHING OF

understanding and reading. Reading was recognized as the skill that would bring the greatest good to the greatest number, but it was identified with translation into English of literary texts.

The *Modern Language Study* of 1924-28 (*q.v.*) and its related agencies broke another lance on the ever-continuing grammar-translation system which could, however, always claim solid work done, especially in colleges and private schools. The conservatism of the foreign language examinations of the College Entrance Examination Board (*q.v.*) tended to keep the grammar approach alive. The wide prevalence of the two-year course in smaller school systems, along with the evidence from test campaigns and questionnaire returns from teachers that present methods were not producing satisfactory results, caused the *Study* to recommend a "reading" approach to these shorter courses.

The reading approach was not entirely approved, especially by proponents of oral approaches such as de Sauzé with his "Cleveland Plan" and Mercier with his "Oral Self-Expression" method, who claimed that not all the evidence was in. Reading programs were already in existence, especially that at the University of Chicago, organized by Hagboldt (German) and Bond (Romance), and that devised by West in India (English).⁹ At the high school level Helen M. Eddy (University of Iowa High School) published a learning system in French and L. A. Wilkins (New York City Schools) prepared materials in Spanish, adapting the West techniques to American schools. The oral approach, however, is by no means dead, and World War II brought into prominence the language teaching in Japan by two exponents of an oral approach: Palmer⁵ for English and Marchand for French. The wide acceptance of the "Good Neighbor" attitude with our southern neighbors has given a renewed impulse to the study of Spanish and a start to Portuguese and the first rush is to acquire oral skills.

Meanwhile other curriculum forces have been operating to confuse the situation. The academic demands of college entrance requirements are disappearing as almost every college and university abandons the requirements of entrance credits in a foreign language and as nearly all but the liberal arts colleges abandon the foreign language re-

quirement for graduation. That students may succeed in college without definite, prescribed knowledges and skills appears amply proved by the reports of the *Eight-Year Study* of the Progressive Education Association (*q.v.*). Foreign languages are now almost entirely elective and the general language course (*q.v.*) is becoming increasingly effective as a preliminary orientation to some pupils and as a language arts substitute to others. It may be said of methods in summary that successful oral approach systems exist largely in city school systems, some colleges, and some private schools; reading approaches are more prevalent in smaller schools; and the grammar approach still persists in any kind of system. There are, however, many exceptions to this statement.

Numerous forces have operated in recent years to bring a gradual decline in the study of foreign languages. New courses entered the secondary-school curriculum as it attempted more and more to provide in a democratic way for the differing needs of boys and girls. Rarely was a course dropped when a new one came in, and big high schools (strongly aped by smaller ones) tried to use the college plans of laying down an "academic" sequence of courses, a "vocational" sequence, etc. The new experimentation with contract plans, broad-fields (*q.v.*) courses, fused curricula, and especially the "core-course" (*q.v.*), has tried to merge subject areas and break down barriers. These plans have been of little help to foreign languages, which do not seem able to "merge" well, do not adjust to the "core", and strongly resent even the idea of "general" language. There is keen competition among the different languages for pupil time, while enrollment destinies rise and fall with political events and with curricular experimentation and administration.

Purin⁶ tabulated for the *Study* the questionnaire returns on teacher training. Although hundreds of very well trained teachers were revealed in the country, in the main a large percentage were poorly prepared, especially in the oral skills, revealing one strong reason why results have been poor. A recent study among French teachers may be considered representative.⁴ In most regions more than half of the teachers had the M.A. degree and

MODERN FOREIGN LANGUAGES, TEACHING OF

many had lived or traveled in France. In senior high schools and colleges the teachers averaged 10 to 15 years of experience and the memberships in professional societies were creditable (although too few).

In the three statistical tables below are

given enrollment figures.⁸ It may be seen in Table I that the highest percentage was in 1915, although it must be understood that the great increase of school populations has brought more actual *pupils* into language classes recently than in previous years.

I. Percentages of High School Populations Studying Foreign Languages

Year	1890	1895	1900	1905	1910	1915	1922	1928	1934
Latin	34.7	44.0	50.6	50.2	49.0	37.8	27.5	22.0	16.0
All Mod. Languages .	16.4	17.9	22.1	29.4	34.3	35.6	27.4	25.4	19.7

II. (a) Percentages of Total Number of French Students Enrolled in Their First Year of Study, Distributed as to Grades

Grades	7	8	9	10	11	12	7-9	10-12
Public Secondary	3.7	9.3	28.9	30.9	24.3	2.9	21.9	78.1
Private Secondary	10.0	12.7	29.8	27.1	17.8	2.6	52.5	47.5

(b) Percentages of Total Number of French Students, Distributed as Enrolled in Their 1st, 2nd, 3d and 4th Years of Study

Year of Study	1	2	3	4	1-2	3-4	5th
Public Secondary	55.5	32.0	11.0	1.5	87.5	12.5	
Private Secondary	48.5	29.7	15.8	5.9	78.2	21.7	0.1

III. Shifts in Distribution of the Foreign Language Enrollment in New York City Senior High Schools During 23 years

Year	French	Ger- man	Span- ish	Italian	Latin	Ratio to School Population
1917	23.2	27.1	0.1	25.3	24.3	103
1920	30.7	0.1	0.2	45.6	23.4	90
1925	35.8	5.9	1.2	29.3	27.8	81
1936	45.5	10.6	5.1	24.3	14.5	61*
1940	43.7	8.0	7.2	35.6	13.8	57*

* In 1936 there were 1,539 students of Hebrew; in 1940 there were 2,714, 1.7% of the enrollment.

In Table II the figures show how study was concentrated in the 9th-11th grades (note the small enrollments in 7th-8th grades) and how the great number of pupils study foreign languages for only two years. Table III shows the ups and down in language enrollments in a large city as wars come and go. Happily German has not dropped to nothing in the second World War as it did in the first; note the steady decrease in Latin. The very recent increases in Spanish are known only for the colleges through the data in *Crofts Modern Language News* of Nov., 1941, based on reports from 526 institutions: French was down 23.5 per cent from the year before, German down 11.0 per cent, Spanish was up 27.0 per cent. In 1940 French was down 15.5 per cent, German down 3.3 per cent, Spanish up 21.5 per cent over 1939 figures. In Nov. 1942, based on reports from 509 colleges, French

was down 23.7 per cent from the autumn of 1941; German down 11.6 per cent; Spanish down 1.0 per cent, doubtless due to wartime withdrawals into service or production.

Although vocational values are claimed for a very few learners and strong stress has been put on cultural values (knowledge of the people, customs, etc.), the study of foreign languages must yield values in skills and understandings and appreciations. Many variations can be cited of school aims as they have been framed for current teaching. The following statement has been endorsed by most of the outstanding foreign language educators of the country; it may be considered typical of a suggested syllabus for secondary-school courses.

The Aims of Modern Language Instruction. The aims of courses in modern foreign languages will have to depend on several factors: the preparation of the teacher, the teaching situation, the materials available, and certain administrative factors, not the least important of which is the amount of time at the disposal of the teacher. The statement proposed as a frame of reference for tentative high school syllabi now in preparation by the Ohio Council on Modern Language Teaching, lists the following aims as best suited to the minimum course in a modern foreign language:

I. To develop an ever-increasing ability to

MONISM

read for recreative and vocational purposes materials in the foreign language, beginning with graded reading texts and progressing to books, newspapers, and magazines within the scope of the student's interests.

II. To aid the student to acquire such knowledge of the grammar of the language as is demonstrated to be necessary for reading with comprehension and speaking with relative grammatical accuracy.

III. To aid the student to acquire relative accuracy in pronunciation, and to achieve the ability to understand and to use the language within the limits of his vocabulary.

IV. To provide for an ever-expanding student knowledge of the foreign country (or countries) whose language is being studied, its history, institutions, ideals, and contributions to our civilization, and the life and characteristics of the foreign people in order that students may have a less provincial attitude towards the merits and achievements of other peoples.

V. To provide for an increasing knowledge of the meanings of English words through a knowledge of the foreign words from which they have been derived, and for an increased knowledge of the principles of English grammar, and of the relationships between the foreign language and English. (See DIRECT METHOD OF TEACHING FOREIGN LANGUAGES; MODERN FOREIGN LANGUAGE "STUDY".)

J.B.T.

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MONISM. All philosophy may be said to be monistic, that is, single, in the general sense that it directs attention not only to the totality of experience but also to a harmony, consistency, or unity of its individual and conflicting items. Ordinarily and more specifically monism is a theory that the nature of reality can ultimately be reduced to a single principle. What that single principle is, however, is a moot point. Those who reduce everything to matter or physical energy are usually known as materialistic monists, while those who reduce all to mind or spirit are called idealistic monists.

Materialistic monism is to be found at a number of points in educational thought and practice. It is most notable in the field of educational psychology. Here the tendency of scientific psychology has been to reduce psychological phenomena to neurological, physiological, or physio-chemical terms. The explanation of learning is confined strictly to nature. Illustrative is the fact that the language of explanation is heavily burdened with such terms as organism, glandular and nervous mechanisms, behavior. The same materialistic monism also often crops out where the motivation of learning is based on biological satisfaction or the selection of studies is predicated on a hedonistic utilitarianism.

Idealistic monism leads to quite a different interpretation. Here matter is reduced to an aspect of mind—of ideas (idealism is really idealism). Consequently, psychological phenomena, particularly those of learning, are cast in immaterial concepts. Indicative of this change is the more frequent use of such terms as self, purpose, consciousness, and will. Here value is thought of as self-realization, perfection of one's powers in the direction of the ideal. In some idealistic systems there is a monism of will rather than intellect. Such probably was the philosophy back of Froebel's kindergarten.

One of the most famous of all monisms was that of Hegel. Through the employment of an ingenious dialectic, he sought to resolve

MONTESSORI, MARIA

the opposition of every thesis and antithesis into a higher synthesis, all topped and enclosed by "the Absolute" (Absolute idea or reason). It is this system which Dewey, the great philosopher of democratic education, says has left a permanent deposit in his thinking. It is also worthy of note for education that the idealistic monism of both Froebel and Hegel tend to be monotheistic.

Finally, reference should be made to the state as a manifestation of the extent to which the "absolute idea" has been able to realize itself in the world. This further extension of idealistic monism is important in understanding the Fascist and Nazi theory of education in the unitary or totalitarian state. While the Nazis decline to acknowledge historical continuity here, the descent of the notion from Hegel to Gentile through Croce is quite clear in Fascist education. (See GERMANY, EDUCATION IN; ITALY, EDUCATION IN.) J.S.B.

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MONTESSORI, MARIA. Madame Maria Montessori was, for some years before 1900, an assistant in the Psychiatric Clinic of the University of Rome. She began her educational career as a teacher of defectives and had remarkable success in using and modifying the methods of Sequin and Itard in training sub-normal children. For the instruction of such children she developed a large amount of sense-training material. She lectured extensively on her work, and applied her methods to normal children in some schools which she organized in some tenements in Rome, schools which she called Children's Houses. Her methods aroused a great deal of interest in many countries a few decades ago and were widely adopted. Many Montessori schools were opened in different parts of the United States and the method was for a time heralded as a great improvement over the kindergarten. It is questionable, however, whether her methods have been proved successful in the education of normal children, and they have been somewhat generally rejected by most American educators for any except sub-normal children or those whose

development is retarded. Her practices are based on an outgrown faculty psychology and upon the disputed doctrine of formal discipline, and her schools are generally regarded today as distinctly inferior to the modern American kindergarten.

Madame Montessori believed in training the senses one at a time and invented many exercises and materials, graded strictly, to achieve this end. Visual perception of forms is developed through the handling of solid inserts, many kinds of form boards, and ascending and descending cubes; perception of colors, through learning to distinguish between hanks of silk variously colored; the thermic sense through the perception of the differences between warm, tepid, and cold by dipping the fingers into vessels of water heated to varying temperatures; the tactile sense by giving the child surfaces, rough, smooth, and in-between, to touch and describe; the baric sense by lifting weights; the rhythmic sense by "walking on the line" to the accompaniment of a rhythmic march; and so on. In addition, there are "exercises of practical life"—learning to lace, button, hook on specially constructed frames (preparatory to learning to dress one's self), "making the silence", keeping the room in order, washing one's self, setting the table, and so on.

Madame Montessori holds with Rousseau that "nature is right", and therefore demands complete freedom for the child, yet she restricts his choice of activity to her particular exercises. She says that "auto-education" is the only real education. The child should choose whatever occupation interests him and continue to play or work at it without interference, unless he disturbs other children in the room. Each pupil is supposed to work independently on such materials as he chooses, but the Montessori materials are limited to a fixed number of things that can be handled only in certain definite ways. The games and occupations of Froebel, so valuable for the development of imagination, feeling, and social cooperation, are lacking. Children do not work together in cooperative tasks, and the teacher is an observer of the children's activities rather than a participant in them. Her work, therefore, lacks the social nature that dominates the education of today. Madame Montessori has had considerable success in developing speed and skill in penman-

ship, but her method in reading is applicable only to a phonetic language like Italian, and her method in arithmetic is slight improvement over the method commonly used elsewhere. The Montessori method, devised to train the senses and develop an ability to engage in practical activities, continues to have its greatest value in the training of sub-normal children. E.H.W.

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MORES. Mores is a sociological term referring to those forms of moral custom which any given society considers essential to its welfare, and which it therefore enforces upon its members through the imposition of general social pressures. Mores differ widely according to period, place, and people, but since they are always the rationalized standard of moral behavior accepted by a given group, they are usually regarded by members of that group as beyond question or criticism.

Mores are distinguished from folkways and law, two other types of social pressures which also influence conduct, the basic difference being in the intensity and the formality of the pressure exercised.

Folkways are those social customs observance of which is desired and expected but not necessarily demanded; for example, use of the proper fork at table, choice of appropriate dress for the classroom, etc. Disregard of the folkways may cause comment to the effect that the individual in question is "ill-mannered," "uncultured," "undesirable," "eccentric," "independent," and the like, but he still may remain professionally acceptable. *Mores*, however, are obligatory folkways, indifference to which is believed thereby to threaten the safety and stability of society itself. Violation of the mores, as in extramarital sex relations, profession of atheism, or public espousal of anarchism, therefore brings charges of "immorality," "heresy," "radicalism," "public menace," "threat to our children," etc., and the violator is probably no longer acceptable either professionally or socially.

Laws and regulations may enforce through formal legal procedures and penalties the observance of folkways and mores; for example, school board rulings may bar married

women as teachers, school law may permit dismissal of teachers convicted of sex immorality, and state law may provide for legal prosecution of sex offenders. The law also may prove impotent to protect innocent violators of the mores, as when members of minority racial and religious groups are denied teaching positions even though discrimination on such grounds may be expressly forbidden by federal, state, and local law.

The teacher must become familiar with the mores and the folkways of the groups with which he deals. The woman teacher who is seen smoking in a restaurant or who accepts a ride from a stranger who is driving to town may not realize how deeply her behavior has shocked the particular community. Understanding the mores and the folkways also will help the teacher to know his students better. The teacher who deals with people different in background from those with whom he has been brought up—as, for example, the teacher whose school enrolls a number of children of a particular foreign-born group—may be unaware of their custom of letting their young children drink wine, or of forbidding their adolescent girls to go on hiking trips unless escorted by an adult member of the family.

If the school is to be an effective social agency in any community, it is essential that both teachers and administrators understand the mores and folkways of the people living there. E.G.O.

MORON—See MENTAL DEFICIENCY.

MORRILL ACT—See FEDERAL AID; LAND GRANT COLLEGES; MILITARY EDUCATION; STATE COLLEGES AND UNIVERSITIES.

MORRISON PLAN. The Morrison Plan is built upon the basic concept that any real learning is expressed as a change in the learner's attitude or as some ability or skill. Morrison classifies these learnings as attitudes of understanding, attitudes of appreciation, abilities and skill (facility). As real learning products, they are termed *adaptations*, because they make a difference in the way an individual reacts. This view emphasizes the contrast between learning the contents of subjects (facts and information) and acquiring significant ways of reacting.

Another basic concept is that there are

MORRISON PLAN

external things to be learned; which Morrison designates as *learning units*. He defines a learning unit for school purposes as "a comprehensive and significant aspect of the environment, of an organized science, of an art, or of conduct, which being learned results in an adaptation of personality." Since learning consists of experience with, and mastery of, learning units, the first problem of the teacher is to determine the units into which a course should be divided.

Still another basic concept of the Morrison plan is that the work of the different subjects taught in secondary education can be classified into five groups according to the nature of its objectives and the learning processes involved. Upon this basis Morrison devised five types of teaching procedure to be used depending upon the objectives sought. These include: (1) the science type, (2) the appreciation type, (3) the practical-arts type, (4) the language-arts type, and (5) the pure-practice type.

After the units have been selected, the next problem of the teacher is to determine the teaching procedures to use. Morrison refers to the actual work of teaching as *operative technique*, during which the units of learning are "developed in the class and in the individuals thereof." It includes the presentation of different materials, supervision of study, testing of pupils, corrective teaching, etc. To guide teachers in systematic teaching, Morrison proposed his *mastery formula*: "Pre-test, teach, test the result, adapt procedure, teach and test again to the point of actual learning."

Many teachers have misinterpreted the basic concept of mastery. Mastery cannot reasonably be applied to a subject or even to a lesson, although teachers talk of the mastery of facts, definitions, dates, or other items of information. True, such content may be important and should be learned, but the concept of mastery applies to the unit-learning as a whole, not to the content or the subject matter alone. That is, there are external things to which we make adjustments, and the resulting learnings are called learning products or adaptations. For example, one form of matter we call a sphere, and the resulting learning product we call a concept of a sphere. Such learning products—concepts or understandings—are acquired

through some kind of experience and are denoted by some name. Thus every learning has an external correlate, and the term unit-learning is applied to both the external correlate or relationship and the resulting adaptation or learning-product acquired by the learner.

Besides our concepts of material things, we acquire concepts of many processes and procedures as unified wholes, such as the process of osmosis. The abilities we acquire represent other types of unit-learnings we use in everyday life. Concepts of social situations, movements, or events such as the "Industrial Revolution" or the "Western Movement in the United States" illustrate the nature of other important unit-learnings.

The acceptance of the mastery concept emphasizes the importance of selecting the unit-learnings that are significant for living and, as far as possible, of helping pupils to master them, that is, to enable pupils to react satisfactorily whenever situations involving such unit-learnings arise. There are thousands of such unit-learnings. The difficulty in applying this mastery concept in school practice lies in the difficulty of determining the most significant unit-learnings to be mastered and in grouping these various unit-learnings into teaching units or course-of-study units for school use.

The term *mastery technique* is applied to the plan of procedure used in developing or teaching unit-learnings, for example, teaching the reduction of fractions or the process of osmosis. For the pupil, it is not a matter of learning a definition or being told a meaning, rather it is his having experience from which meaning evolves. The term mastery technique is also applied to the plan of procedure used in developing a learning or teaching unit in the course of which many different unit-learnings are developed. Whatever the learning situation, learning is concerned with the acquisition of different kinds of unitary adaptations.

Probably the five-step science type procedure is the best known and most widely used of the Morrison teaching types. The teaching steps are: exploration, presentation, assimilation, organization, and recitation. It is planned to be used with science-type units, in which the objectives are adaptations in the form of understandings of principles or proc-

esses in relation to cause and effect. It can be used in such courses as mathematics, grammar, and the physical, biological, and social sciences.

According to Morrison, the techniques that bear his name grew out of studies under his observation in the schools of Portsmouth, New Hampshire, where he was superintendent, and in other schools in New Hampshire, where he was state superintendent of schools. The techniques were perfected in the University of Chicago laboratory schools following his affiliation there in 1919. T.M.R.

Reference.

H. C. MORRISON, *The Practice of Teaching in the Secondary School* (University of Chicago Press, Chicago, 1931).

MOTHERCRAFT. A term infrequently used today, originally coined by Mary L. Read to cover those aspects of child care which she believed to be the responsibility of mothers. In 1911 the "School of Mothercraft" was opened in New York City by Mrs. Read to provide theoretical instruction and practical experience for young women in the care and training of babies and small children under home conditions. Mrs. Read's book, *The Mothercraft Manual*, published in 1917, was used as a textbook by various other early workers in preparental and parental education (*q.v.*). The first classes for mothers offered in Oklahoma under state auspices were called "Mothercraft classes."

The word "mothercraft" has also been used in England in a somewhat narrower sense, as synonymous with infant care (*q.v.*). B.B.L.

MOTION PICTURES IN EDUCATION. The motion picture today is firmly established in a large number of school systems as an educative instrument of unique value. Not only can the pupil observe motion as though he were present, but through the use of unique angles, close-ups, and other optical devices he is able to get a better view in many instances than he would if he were an actual spectator to the action. In fact through slow motion photography, time-lapse photography (in which unobservable motion such as a flower opening is speeded up so as to be observable), and microphotography, he can see objects not to be seen with the naked eye. The film also eliminates unimportant and extraneous details so that stress is placed

upon the important elements in the situation. With the sound motion picture there is the further advantage of clear explanation occurring simultaneously with the motion, thereby strengthening the total impression. The experimentation which has been conducted in the use of motion pictures has demonstrated the remarkable advantages of motion picture presentation in improving learning, stimulating endeavor, and building attitudes.

Today the 16mm film has been accepted as standard for classroom use because of its availability, inexpensiveness, and ease of projection on portable equipment. The standard one reel subject is 400 feet in length and requires 15 minutes for projection if a silent film, or 10 minutes if a sound film. It is available in a great many subjects, some made especially for school use. There are also a great many industrial or advertising films available, and a great many of these are of acceptable quality, for the producers have found that the best form of advertising is good will. Most of the industrial films show processes and many of the less valuable of these films tend to become monotonous because of their great emphasis upon minute detail, and lack of emphasis upon the social factors in the industrial process. Within the past few years an increasing number of films originally intended for theatrical use have been made available for school use. On the whole these films are of high quality, though the geography films tend to be of the travelogue type which seldom gets inside the homes of the people visited so that we may see how they really live. The U. S. Government films are among the best available on the limited topics with which they deal.

Should a film be silent or sound? There are many advocates of each type of film, but more and more those who use films are coming to the conclusion that both types have their places. If sound is essential to the subject to be taught, then use the sound film. If sound is not essential, then the silent film may be preferred. There is, however, a tendency toward more sound film usage because it more closely approximates reality. It also possesses the advantage of conversion into a silent film by the simple expedient of shutting off the sound. Most schools are now purchasing sound machines for a similar reason; it

MOTIVATION

will run both sound and silent films while a sound film cannot be shown on a silent machine.

The commercial theater has also entered into our national life in a potent fashion which commands the attention of educators. On the one hand it acquaints the pupils with a great many valuable facts about the world in which they live. On the other hand it exposes them to false romanticism, overexcitement, highly emotional situations, and complex problems with which they are not capable of dealing. In some localities considerable attention has been given to the opportunities and problems presented by the commercial film. Good photoplays have been recommended, even sponsored by the school authorities. Courses in photoplay appreciation have been conducted, junior review groups set up, and reviews sent out to parents. Much, however, remains to be done in this important area. (See AUDIO-VISUAL AIDS.)

W.H.H.

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MOTIVATION. It has taken a long time for educators to recognize that the problem of motivation is much wider than the application of incentives to individuals from whom certain learnings or activities are desired. Increasing emphasis is now placed upon the fact that all human behavior is dynamic or goal-directed. Human goals—the motives which lead individuals to behave as they do—and the possibility of changing these motives are themselves becoming the focus of interest of our schools. Such terms as needs, wants, desires, interests, incentives, attitudes, purposes, values, drives, are all used synonymously with motivation or with some aspect of it, depending partly upon how the writer wishes to distinguish terms and partly upon his theory of the innateness of motive.

Psychologists are not in full agreement as to which motives are universal among mankind nor as to whether the more universal motives have stronger driving power for every individual than have other motives which he has acquired. Most commonly placed among universal motives are the physiologic drives away from hunger, thirst, tiredness, and pain and towards food, drink, rest, sleep, and general physical well-being; the drive away from being bored and towards interesting activity; the drive away from being ignored and unwanted and towards being loved and given some status; the drive toward satisfaction of sex desires; the drive away from feelings of failure towards feelings of success and mastery. Among lists of universal drives or motives that are now offered, we find no specific things which man finds "good" and wants, or finds "bad" and does not want. In the fact that only the desire for food is universal and not the desire for any particular food lies the opportunity for the adults to arrange conditions in such a way that the particular things and the particular ways which the child adopts for gaining satisfactions are in line with, rather than opposed to, the social mores and continuing individual adjustment. No matter what the exact nature of the dependence of motives on innate characteristics may be, there is agreement that the development of values is a social process and that every institution of society, including the school, has a direct influence on the evolution of motives. Many educators are therefore insisting that the school recognize this power which it has and which it cannot put aside, and that every policy of the school and every phase of its curriculum be examined to see whether the influence exerted on the formation of temporary and lasting motives is of the kind desired. (See INCENTIVES for a discussion of motivation from that aspect.)

B.B.F.

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MULTIPLE-CHOICE TEST—See OBJECTIVE TESTS AND EXAMINATIONS.

MULTIPLE CORRELATION — See CORRELATION (STATISTICS).

MULTIPLE REGRESSION—See REGRESSION (STATISTICS).

MULTIPLE TYPE OF ORGANIZATION—See ADMINISTRATION, SCHOOL.

MUMPS—See COMMUNICABLE DISEASES OF CHILDHOOD.

MUNICIPAL COLLEGES AND UNIVERSITIES. The municipal college or university may be defined as an educational institution devoted to higher education which (a) is controlled by a board appointed by the municipal authorities; (b) is supported completely or in large part by local public funds; (c) requires graduation from a standard high school or the equivalent as a basis for admission; and (d) offers a course of study leading to an accepted degree or degrees. This definition thus excludes from consideration such institutions as junior colleges, adult education centers, normal schools, etc., which are supported and controlled by many municipalities throughout the country. The municipal college, or university, differs too from the urban college or university, which is an institution of higher learning, either publicly or privately supported, established in an urban environment and frequented, at least to some extent, by non-resident students. Normally control of the municipal college or university is lodged in a board of education, or a board of higher education, although it is theoretically possible that the supervisory function may be entrusted to a commissioner of education.

In terms of the above definition, there are twelve such institutions in the United States at the present time. It is interesting to note that only one of them was established by a municipality as a full-fledged college or university. Some were transferred to the public domain from previous private ownership; others developed from institutions which were not on the college level.

The principal aim of such institutions is "to equalize educational opportunity by bringing the advantages of higher education to hundreds who otherwise would be unable to

enjoy them." That this aim has been legitimate is proved by the enrollments in municipal colleges, some of which are very large. Perhaps the development is most striking in states that do not support state universities, but in Ohio municipal institutions have thrived nevertheless. New York City now leads in municipally supported higher education, with day session enrollments normally in excess of 20,000 in four colleges. Wayne University in Detroit is the largest municipal university, and offers professional training in medicine, law, and business administration.

One of the most common reasons why students cannot attend college is their inability to meet the cost, not of tuition fees but of living expenses. The municipal college enables them to live at home and still secure college training. Many students can actually maintain themselves either completely or in part while securing advanced education. In this connection it should be noted that practically all of the municipal institutions conduct evening classes for those members of their student body who are employed during the day.

The several municipal universities show wide variation in many respects—scope of work offered, enrollment, financial support, student fees. The table below indicates some of the differences which appear. It seems rather surprising to find that many of the municipal universities receive a substantial part of their funds from student fees, income drawn from this source varying between 5 and 55 per cent of total operating income. It should be noted, however, that fees are most common in those institutions which provide advanced professional training beyond the baccalaureate degree. The tendency is to keep tuition costs for liberal arts work to a minimum, and to provide professional courses at relatively larger fees. It must be realized, too, that many of the municipal colleges admit nonresidents, who pay much higher fees than do residents of the municipality in which the institution is located.

In so far as curricula are concerned, the municipal university is similar to other private and public institutions throughout the country. The major concern of all the municipal colleges is undergraduate work. Few of the colleges maintain preparatory schools, and graduate work, if offered at all, is looked

MUNICIPAL COLLEGES AND UNIVERSITIES

upon usually as less important than professional and undergraduate training. The municipal college generally offers a four year program of studies leading to the usual baccalaureate degrees. The professional and graduate schools which have been organized conform to the general national pattern for such schools.

It should be noted that the municipal college is normally less experimental and more conservative than are private institutions in the same area, although some municipal colleges have been educational pioneers. The City College of New York, for example, was one of the first colleges to establish a Chair in English, to recognize the importance of speech education in college, and to emphasize laboratory work in the teaching of science. The reasons for the conservatism of the municipal colleges may be that teacher training emphasis is pronounced at most such institutions, and that prudence is exacted of educators directly responsible to urban public opinion. Nevertheless, educators of great merit have governed municipal colleges, notably Thomas Hunter at Hunter College in New York City, John Finley at the City College of New York, Paul Klapper at Queens College in New York, and Raymond C. Walters at the University of Cincinnati.

In academic work, the municipal university is noteworthy for demanding a high level of scholarship on the part of its student body and its faculty. Admission requirements ordinarily are somewhat more rigid than is the rule, and the academic burdens of both student and faculty are heavier than prevail elsewhere. All of the municipal institutions are fully accredited by their regional associations.

Perhaps the most important aspect of the work of the municipal college lies in its service to the city in which it is situated. The municipal institution has made a definite attempt to ally itself with the social, economic, and cultural life of the community. Thus, for example, the College of the City of New York offers many courses designed especially for the benefit of members of the city's civil service employees; the University of Akron, located in the center of the rubber industry, has developed a specialized course in rubber chemistry; the University of Cincinnati maintains a reference bureau, which serves as a clearing house for municipal information, and a testing bureau for the evaluation of city purchases. The contribution of the municipal university to the urban area in which it is located is a convincing reason for its continued support.

Table I
Comparative Data on the Twelve Municipal Colleges in the United States*

College	Founded	First Under Municipal Control	Schools and Colleges in Each	No. of Degrees Offered	Size of Faculty	Size of Student Body	Operating Income	Approx. Operating Income Received from Student Fees (Per Cent)
College of Charleston ..	1790	1837	2	3	399	1,912	\$ 105,203	22
University of Louisville	1837	1846	8	17	185	3,191	740,224	55
College of the City of N. Y.								
—City College	1847	1847	4	15	1,266†	29,614	3,840,122	12
—Hunter College ...	1870	1870	1	4	706	14,352	2,752,910	5
—Brooklyn College..	1930	1930	1	3	412	15,465	3,795,373	6
**—Queens College..	1937	1937	1	2	170	2,063	753,616	4
University of Akron ...	1872	1913	4	16	126	1,537	432,753	47
University of Cincinnati	1873	1873	9	27	840	10,266	2,359,724	40
University of the City of Toledo	1875	1884	6	15	138†	3,124	388,743	46
Municipal University of Wichita	1892	1926	5	13	76	1,425	392,856	38
Municipal University of Omaha	1909	1931	1	3	57	787	349,434	31
Wayne University	1915	1915	9	26	905†	15,215	1,809,267	47

*1937-38.

**1941-42 figures.

†Not reduced to full-time basis.

MUSCULAR COORDINATION — MUSEUMS

The history of the municipal college is an inspiring narrative of courageous leadership. When the City College was founded in 1847 by a group of public-spirited citizens, a publicist commented bitterly that the establishment of such an institution must be considered an unerring indication of "the spread of that Agrarianism which preceded the decline and fall of the Roman Republic". After Thomas Hunter and established the first free training college for women, he had to fight a running battle with commentators who not merely questioned the morality of the undertaking but deplored what they considered the liberalizing of the curriculum. Even in more recent times the tide of opposition has sometimes run high. With the many other demands upon local funds, particularly in times of economic and social stress, an institution of higher education may be looked upon as an unnecessary expense by short-sighted city administrative officials, and demands for curtailment and retrenchment are almost certain to arise again as they have in the past. But it has been demonstrated that when the municipal college is ably led and staffed, and when the attitude of the city administration is based on friendliness and honesty, it finds a large measure of support in public opinion.

G.N.S.

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MUSCULAR COORDINATION — See COORDINATION.

MUSEUMS. Objects, specimens, and models may be employed in two general ways to add concreteness to the learning process. The objects may be brought into the classroom where they may be seen, handled, and, in some cases, worked with, or the pupils may go to a central repository of such materials where they may see the objects as arranged, displayed, and explained by experts. The first type of experience may be gained in the school museum and the second, in a public museum. Both experiences are important.

A great many schools have developed effective school museums by the simple expedient

of setting aside appropriate room space, providing shelves, and setting a class to work obtaining and arranging exhibits. Museum specimens may be obtained from the school environment, the pupil's homes, commercial concerns, educational supply houses, and public museums. An increasing number of public museums are providing loan exhibits to schools free of charge or for a small fee. It is important that the material be well arranged. Among better forms of arrangement are those which show development, processes, comparison, or contrast. It is important also that all exhibits be properly labeled. The school museum should not be a storage place for worthless curiosities or a glassed-in showplace with a strict hands-off policy. Instead it should be a source of information, a depository from which classes may borrow objects as they would borrow books from a library. It should lead pupils to investigate and experiment and should stimulate a desire to learn more about peoples, places, and things.

The public museum and school should maintain a policy of close cooperation. The museum can help the school by furnishing traveling exhibits, providing lectures and gallery talks, organizing classes, and providing hobby clubs for pupils and teachers. The first of these services is available to schools some distance away from the museum itself, and more and more schools are supplementing the traveling exhibits by conducting class trips to the nearest museums. (See EXHIBITS, EDUCATIONAL.)

The *docent* is the instructor on the museum's educational staff who gives gallery talks and illustrated lectures to visiting classes. In some instances he visits the school with traveling exhibits, offers advice to teachers wishing to utilize the museum's facilities, and serves generally as liaison officer between museum and school. W.H.H.

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MUSIC APPRECIATION

MUSIC APPRECIATION. The appreciation of music involves more than a pleasurable response; it implies an appraisal of values. When the two are confused, sentimentality is often mistaken for æsthetic judgment. A piece of music then becomes important because of its associations, and when the associations are broken the appeal of the music dies. This is the typical fate of most "popular" music. By contrast, some compositions possess internal strength of æsthetic design and purpose. They continue to live. One might appreciate the personality of the performer or the social use of a piece of music, but to appreciate the music itself he must become attuned to the qualities which make the music expressive. For example, several generations ago the music of Robert Schumann became popular largely through the brilliant musicianship of his wife, Clara. "The most beautiful romance in musical history" undoubtedly did much to color the music of Schumann whenever it was played by his charming wife. Audiences would think of the long courtship, the violent parental opposition, the anxiety of young Robert, and the final triumph of his love, poured out in the music. Yet it was not these sentimental reveries which kept the music of Schumann alive. The famous *Quintet* is played today because it breathes a pure quality of expression, an undefined turbulence of spirit shaped into a musical composition of balance, unity, and coherence.

Music is popularly conceived as a universal language. This is true only in the sense that it expresses human emotions that are universally felt. Such appendages as "moonlight" sonata or "raindrop" prelude may tend to enhance the listener's mood for a time, but eventually the interpretive power of the music itself transcends such limiting descriptions. Appreciation to a large extent is a recognition of those qualities which make music endure.

Aims. Achievement of the following specific aims contributes to the development of music appreciation: freedom of intellectual and emotional response to music; familiarity with the enduring literature of music through singing, playing, and listening; recognition of melodies, rhythms, and structural forms; habits of attentive listening; sensitivity to

tonal color; power to create musical compositions; dissatisfaction with cheapness and vulgarity; and eagerness for sincerity and beauty of expression.

Methods. To appreciate music, children must live with it and feel its power; this involves both performing and active listening. As in other educational enterprises, the teacher can best perform his rôle by creating and utilizing a suitable environment.

In a broad sense a musical environment exists for children regardless of the teacher. In many homes the mother or other family members play and sing. Programs are heard daily on the radio, and not infrequently community groups sponsor varied musical events. Whether or not children attend or participate in these programs rests largely on the educative force of the school. An alert teacher studies the community opportunity for music and creates within the classroom an awareness of its presence and significance. Common methods for this stimulation include the posting of pictures, news clippings, radio schedules, programs, etc., and the discussing of events by those who attend. Organized listening lessons and classroom programs may precede a special musical event outside the school. The teacher himself may perform, children may sing or play representative themes, and appropriate instrumental demonstrations may be used.

Although attendance and participation in actual performance are of prime importance for the appreciation of music, the school can use effectively other methods to improve the musical background of children. A common approach is the study of a national culture expressed in music. For example, an appreciation of the *Peer Gynt Suite* by Edward Grieg may develop with a study of the life and customs of Norway, a reading of Ibsen's play, and a review of the boyhood of Grieg. Books, pictures, narrative description, and contact with Norwegian people serve to promote this background. Such a method is only an approach, however, and should lead to experience with the music itself. Children may listen to recordings, sing principal melodies from blackboard notation, perform on percussion instruments, and, if technically able, play the actual selections. An intelligent teacher will use any such teaching device as impetus for listening or performing, and will

MUSIC EDUCATION

measure its success by the warmth and understanding it engenders in the learner.

Curriculum. For children of the primary grades, the appreciation program generally includes bodily response to rhythm through walking, skipping, marching, and dancing. Such activities give basic experience with pulsations, tempo, and phrase patterns. Singing in a light, clear voice helps to build sensitivity to tone quality. The listening program generally stresses short selections that are strong in mood. The use of percussion and melodic instruments enhances the expression of children and provides opportunity for aural discrimination. By creating their own orchestration children become sensitive to loud and soft, fast and slow, and high and low. Actual performance, under favorable circumstances, creates an attitude of sympathetic understanding toward others who perform. In schools where a unit approach is used, the above activities are generally related to the central purpose of the unit in both content and method. For example, if the unit happens to be a study of the farm, children perform rhythmically in planting the seed, harvesting the crops, churning the butter, etc.

In the intermediate grades children generally experience singing in parts, reading of musical notation, and a listening program of recorded and performed music. The latter usually stresses descriptive music and the use of instruments and voices for musical effects. Such a selection as *Peter and the Wolf*, by Prokofieff, is ideal at this level. Integrated programs involving social studies, art, physical education, and other areas also provide rich opportunities for the development of appreciation.

In the junior and senior high schools, students enjoy three- and four-part singing. Their awakening social consciousness leads them naturally to social music. The appeal of personalities at this level is strong, and the wise teacher utilizes it as an approach to listening and performing. The trials and tribulations of noted composers form meaty substance for interest in music; for example, the fortitude and character of Beethoven, who composed after the onset of total deafness, appeal to hero-worshipping youth. Organized listening programs, such as are listed in the *References*, increase in complexity so that at high school and college levels students are

ready to delve into the structure and varied styles of symphonic music, operas, oratorios, and solo works.

Extensive libraries of recorded music, radio programs, and transcriptions are now available for school use. These, together with an abundance of teaching aids and instructive literature for teachers, make possible a constructive program in even the most remote sections of the country. (See APPRECIATION.)

L.F.W.

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MUSIC EDUCATION. Since primitive times, music has modified human behavior. Its power to incite joy, suspense, awe, contentment, and conquest was considered by the ancient Greeks to affect the *ethos* and through this the character. During the Dark Ages the Greek tonal systems were altered and preserved by the church. Music education within the monasteries was conducted by the use of illuminated charts, similar in size and purpose to reading charts of present day primary grades. The Renaissance stimulated a development of secular music, the invention of instruments, and new forms of contrapuntal composition, which evolved into our present system of harmony and measured time. During the seventeenth and eighteenth centuries declaimed poetry grew into opera, the miracle play became oratorio, and instrumental ensembles began to take the shape of our modern symphony orchestras. Because of the poor economic and social status of the musician, the music education of youth came usually by grace of royal patronage or by the tradition of folk music within the home.

In America, the early churches of New England frowned upon the use of music. During and after the Revolutionary period, however, the singing school movement grew

MUSIC EDUCATION

in popularity but reached only a few of the total population. It was in 1838 that the Boston school board introduced the teaching of music into the public schools by employing Lowell Mason as instructor. Since that date, music has become a subject of instruction in every state of the Union.

Aims. Music instruction entered the American public schools largely on the thesis that it helped train the mind. Emphasis was given almost exclusively to the reading of music rather than æsthetic expression. It was not until the turn of the century and, particularly, during World War I that the public and the schools sensed more fully the emotional value of music in the lives of young people. Community singing and military bands have contributed to this understanding.

Singing has been and remains the basic activity of public school music. Music reading is still considered a valuable product of public education—not as an end in itself, but as a means toward richer musical enjoyment.

Current statements of purpose generally stress three major aims of music education for the child: (1) to develop an appreciation for worthwhile music, (2) to develop the necessary skills and ability for enjoyable participation, and (3) to develop a desire for expanding and refining the musical culture of the community.

Organization and curriculum. The assignment of music teachers at the elementary level follows two general practices. One requires greater specialization of training and musicianship by teachers and an assignment to several classes. The other requires a basic minimum training of all teachers and an assignment to a single home-room group. At the secondary level, teachers are generally employed who have a special training either in vocal or in instrumental music.

The amount of time given to music in the public school differs widely among school systems. Platoon-type schools (*q.v.*) usually have two to five periods of fifteen to fifty minutes duration a week. Traditional schools often leave the scheduling of music to the individual teacher. Shorter periods recurring daily are generally conceded to produce better results than long periods held less frequently.

A special music teacher who visits among the schools is sometimes employed when cap-

able teachers are not available within a local faculty. This practice is particularly true of instrumental teachers. It is generally discouraged by administrators because of the increased instructional cost of "floating" teachers and because of the separation frequently resulting between music and other school activities.

The function of the music supervisor has gradually evolved from that of overseer or visiting teacher to that of consultant and director. The supervisor, where improved teacher training has freed him from rudimentary instruction of students and teachers, can offer a high type of professional leadership through teaching demonstrations, curriculum development, research, publications, organization of cooperative activities, and community relationships. His assignment seems to be evolving from administrative to advisory activities.

What once was mere "singing" has now become, in many school systems, an elaborate program adapted to individual needs and interests. Required music activities in the elementary schools generally include singing, playing, listening, bodily response, and creative activities. At the secondary levels, where courses are elective, they include general music, mixed choruses, *a-capella* choirs, girls' and boys' glee clubs, instrumental technique classes, bands, and orchestras. A few larger schools offer vocational training in dance music, orchestration and arranging, opera production, radio broadcasting, symphonic repertoire and similar subjects.

Curriculum construction traditionally has been a function of the special supervisor or consultant. It is becoming rapidly a means of in-service training, with students, teachers, principals, supervisors, and the public cooperating in the process. The compilation of data and creation of format are usually entrusted to individuals, committees, or a research department. The construction of courses of study in the more progressive schools is a continuing process, with the course of study bound informally, frequently in looseleaf form, and with bulletins and special reports forming the bulk of the written guide. Content has evolved from textbook determined sentences to a flexible organization of experiences. Octavo music, supplementary books, central libraries of music, radio programs, transcriptions, children's

MUSIC EDUCATION

concerts, and the ingenuity of teachers have all contributed to this movement.

Methods. When Lowell Mason introduced music into the schools of Boston he practiced and preached the teachings of Pestalozzi (*q.v.*) as applied to music. Seven principles governed his teaching method: (1) Teach sounds before signs. (2) Lead the child to observe and discover musical effects rather than have the teacher explain them. (3) Teach one thing at a time, such as rhythm, melody, or expression. (4) Master each step before going on to the next. (5) Give theory and principles as deduction from practice. (6) Analyze and practice elements of articulate sound in order to apply them to music. (7) Have the names of notes correspond to those used in instrumental music.

Teaching methods became the dominating force in music education during the years from the Civil War to World War I. Many devices were used which today have been discarded; others have grown in importance. For example, the alphabetical names of notes were abandoned and replaced by sol-fa syllables. This change persists today. The sensing of time values passed from finger tapping to silent thinking, then to a more overt response than finger tapping (See EURHYTHMICS, DALCROZE). Students were taught to be expert in their power to sing intervals from tonal ladders or modulators. Such methods frequently became ends in themselves and children gained great facility in the use of the device without achieving fluency in reading music from notation.

Accompanying various methods were schools and institutes for teachers, usually promoted by book publishers and leading protagonists of the different methods. Methods became synonymous with basic series of songbooks and the teacher used Mason's method, or later, the Hollis Dann method—the Progressive Method. Since World War I, the training of music teachers has gradually shifted from privately promoted institutes to conservatories and accredited universities. Dominant emphasis on methods, as such, has become subordinated to a program of teacher training and curriculum development wherein a philosophy of education and broad musicianship is prominent.

Today, the emphasis in teacher training has shifted to an understanding of the child, his interests, and the social pattern in which

he lives. The methods used are determined by the teacher's insight into and interpretation of the learner's problems. That the teacher is becoming a strategist of educational opportunities rather than a dispenser of formulae is increasingly evident in more progressive schools. This trend places importance upon flexibility of approach, wide acquaintance with materials, powers of leadership, and a broad understanding of the total educational responsibilities of the school.

Certain procedures are used generally to meet recurring problems. These include the teaching of songs to children by imitation of the teacher's singing, of phonograph records, or of the singing of other children. This is called the rote method of song singing. In the intermediate grades two approaches are generally used for introducing part singing. One emphasizes the use of rounds for development of independence; the other uses simple harmonizations in thirds and sixths, usually as a second part to a familiar melody (such as *Old Black Joe* by Stephen Foster). Much controversy still exists over the approach to music reading. Some maintain that note-reading should be introduced in the first or second grade. Others delay the actual reading of music until grades three, four, or five, depending upon the readiness of the children as exhibited by rote singing, rhythmic response, sensitivity to pitch, and other factors. Details of various methods are contained in the teacher's manuals of basic textbooks and in professional texts.

Professional schools and colleges. Oberlin College, in 1838, was the first institution to introduce music into the realm of higher education. With the expansion of higher education in America, private and state universities have established departments and schools of music, both for general education in the liberal arts and for the training of teachers. Their curricula have generally stressed theoretical subjects. However, some schools give degrees with majors in applied music. Prominent among these are Northwestern University, Yale School of Music, and the University of Michigan.

Professional training for performers and composers has been sponsored largely by conservatories and endowed music schools. Notable among the early conservatories are the New England Conservatory of Music (Boston, 1867) and the Cincinnati Conservatory

of Music (1867). These and similar schools were originally patterned after European models, and employed instructors trained abroad. Today, professional training of the highest excellence is offered by endowed music schools such as the Julliard School of Music (New York City, 1924), the Curtis Institute of Music (Philadelphia, 1924), and the Eastman School of Music (Rochester, 1919).

Trends. The slogan, "music for every child" is rapidly becoming a reality in America. The following trends bear witness to this fact: (1) The war is creating a national awareness of music's contribution to emotional well-being and morale. (2) Musical activities within schools are becoming more closely integrated with life out of school. (3) Music curricula are increasing their variety of offerings in singing, playing, and listening. (4) The human values of music are becoming increasingly important in relation to technical achievement. (5) Music teachers are gaining broader musicianship plus a general academic training and are consequently increasing their powers of leadership. (7) With jazz evolving into a national idiom and the radio pouring forth daily programs, new forces are shaping the tastes and expression of American youth.

Music tests and scales. The evaluation of musical performance is a common experience. The listener who responds to a singer's rendition is testing not only the creative power of the composer and performer but his own power as a receptor. The audience which applauds a performance is expressing judgment of its own aesthetic reaction. The violinist who tunes his instrument to A-440 measures not only the intonation of the strings but his own powers of auditory perception. The teacher who listens carefully to a chorus tests both the performance of individual members and that of the total ensemble. Because of the subjective nature of music, testing remains largely a matter of personal judgment. However, the scientific movement in education has made notable progress toward objectifying and refining criteria and instruments of measurement.

Carl Seashore was one of the first to apply the principles of physics and psychological research to the testing of musical talent. He devised a series of tests, first with laboratory equipment and later with phonograph

recordings, by which he studied isolated musical capacities. His monumental work, *Psychology of Musical Talent* (Silver-Burdett & Company, 1919), initiated a series of carefully conducted research studies in aptitude testing, musical achievement, and aesthetic response.

Aptitude testing. Seashore and his followers have worked on the assumption that measurement of sensitivity to pitch, intensity, time, consonance, melodic memory, and rhythm constitute a profile of capacities which, together with other factors, measures musical talent. They assume that the Seashore tests measure approximate psychophysical thresholds beyond which the learner cannot progress. Such data are used as the basis for predicting probable success of music students. They have demonstrated by investigation that correlations between these factors and general intelligence are low. They have shown also that these factors have predictive value when correlated with grades earned at the Eastman School of Music. Chief criticism of this movement has been made by James L. Mursell and his followers, who believe that musical talent is neither inherent nor can it be measured in isolated capacities. This group would prognosticate probable musical success by measures of aesthetic sensitivity, general intelligence, and musical heredity and environment. They accept the Seashore tests as having merit but believe that they are inadequate without abundant supplementation as an instrument of musical prognosis. The two points of view are not mutually exclusive, but differ in emphasis. Current practice endorses the use of standardized aptitude tests plus informal and subjective observation for the guidance of students.

Achievement testing. Two general types of achievement tests are in current use. One attempts to measure by direct recall the meanings of musical symbols. It is typified by the *Kwalwasser-Ruch Test of Musical Accomplishment* (University of Iowa, 1924). By means of multiple-choice, completion, and matching questions, it tests knowledge of musical symbols and terms, recognition of syllabic names and pitch names, detection of pitch and time errors in familiar melodies, knowledge of time signatures and key signatures, note values, rest values, and familiar melodies from notation. It has been stand-

ardized in a large number of cases and is analyzed in the text, *Tests and Measurements in Music*, by Jacob Kwalwasser (C. C. Birchard and Company, Boston, 1927).

The other type of test attempts to measure achievement through performance or æsthetic judgment. Such a test is the *Hillbrand Sight-Singing Test* (World Book Co., N. Y.). This particular test is scored by a trained observer on the basis of established criteria of excellence. It is not standardized. A highly reliable test has been constructed by William E. Knuth and is available in both A and B forms at three different grade levels (Educational Test Bureau, Inc., Minneapolis, Minn.). It consists of a booklet which can be used repeatedly by inserting a simple score sheet. The test items include a series of four-measure phrases which are played at the piano by the teacher. The student has before him a set of melodies, the first two measures of which correspond exactly with what is played. Four optional notations are offered for the completion of each melody. The person being tested selects the one he thinks corresponds with the one played. Objectivity and ease of scoring plus standardized scores make the test valuable both for individual diagnosis and for survey use.

Tests of æsthetic judgment are largely in the experimental stage. Outstanding in this field is the work of Kate Hevner. She has constructed tests by which the listener selects his choice of two renditions, one of which is an original form and one an altered form. Since it is assumed that the composer's original form is æsthetically better than the alteration, students' choices are measured against this criterion.

L.F.W.

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MYOPIA—See VISION.

N

N. B. C. INTER-AMERICAN UNIVERSITY OF THE AIR—See RADIO IN EDUCATION.

N. Y. A.—See NATIONAL YOUTH ADMINISTRATION, EDUCATIONAL WORK OF.

NARCOTICS. Narcotics is a term applied to drugs such as opium, morphine, heroin, etc., that produce varying degrees of unconsciousness in persons and animals when taken by mouth, inhalation, or injection into the blood stream. They are habit-forming and demand increasing doses to satisfy growing appetites. The vast majority of addicts are adults, most of whom began the use of narcotics after they were grown.

Studies made of addictions reveal that there is no evidence of the use of narcotic drugs among children. Adolescents, however, seem to be in greater danger. More of them have attained relative freedom from the control of the home and have more spending money which they have earned. These facts increase their opportunities to escape from the strains and stresses of middle and later teens by securing and using narcotics. Such adolescents are persons who have already developed faulty personality habits of evading rather than facing unpleasant situations. The prevention of and protection against drug addiction hinge, then, on the nature of the personality. Since the development of healthy personalities is the chief job of the schools, prevention becomes essentially a school function. The adolescents' desire for new and exciting experiences also may lead them into the use of these dangerous drugs.

In certain high schools in that part of the U.S.A. bordering on Mexico there have been sporadic cases of students who smoked cigarettes made of *marijuana*, a plant grown chiefly in Mexico. The effects of this drug are extremely disintegrating to the personality. Thorough investigations into these cases of

marihuana smoking indicate, however, that the reports have been greatly exaggerated. M.S.Q.

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NATIONAL CATHOLIC EDUCATIONAL ASSOCIATION. The object of the Association is to promote and safeguard the interests of Catholic education through study, conference, discussion, and publication. The annual meeting is held during the Easter vacation. Proceedings and addresses are released in the Annual Report and special bulletins published quarterly. The Association includes the following departments and sections: college and university, secondary-school, superintendents, parish-school, deaf and blind education, and seminary. Though no authority is exercised over Catholic schools, since control is vested in the Ordinary of each diocese, the influence of the N.C.E.A. is quite directive and extremely beneficial. Funds for support are derived from membership (sustaining, school, and general) and special donations. The President General is a member of the Hierarchy. The office of the Secretary General is 1312 Massachusetts Avenue, N.W., Washington, D. C. The membership is approximately 3,500; the annual income, \$25,000 (1942). (See ROMAN CATHOLIC EDUCATION.) F.M.C.

NATIONAL COMMITTEE ON EDUCATION BY RADIO—See RADIO EDUCATION, ADVISORY COMMITTEES ON.

NATIONAL COMMITTEE ON TEACHER EXAMINATIONS—See TEACHER EXAMINATIONS, NATIONAL.

NATIONAL CONGRESS OF PARENTS AND TEACHERS. A federation of parent-teacher associations (See HOME AND SCHOOL COOPERATION), which includes many,

NATIONAL DEFENSE, VOCATIONAL TRAINING FOR

though not all, of these associations in the United States. Organized in 1897 under the name of the "National Congress of Mothers," the National Congress of Parents and Teachers now maintains branch organizations in every state and in most cities, and has a total membership of nearly two and half million (as of 1940-41). Publications of the National Congress include *The National Parent-Teacher*, formerly called *Child Welfare Magazine*.

B.B.L.

NATIONAL DEFENSE, VOCATIONAL TRAINING FOR. In May, 1940 the United States Office of Education prepared estimates and proposals for greatly expanding the program of vocational training for national defense. The U. S. Commissioner of Education, John W. Studebaker, proposed that the then available training resources of the public trade schools be fully used, that these facilities be expanded, and that the resources of the engineering colleges be utilized. The splendid way in which public and private schools, both secondary and collegiate, responded to the challenge is now a matter of record.

Within 18 months of the time the proposals were made, approximately 4 million persons were being trained, either through the regular program of vocational training or through classes under the defense training program.

Many agencies are sponsoring training for national defense. The United States Office of Education, in cooperation with State Boards for Vocational Education and with thousands of local boards of education are administering programs such as these:

1. *Trade and industrial training of the pre-employment refresher type.* The purpose of this training is to prepare unemployed persons with single skills that can be used effectively in defense industries. (See VOCATIONAL EDUCATION.)

2. *Trade and industrial training that is supplementary to employment.* This training program seeks to prepare men employed in national defense occupations for more responsible jobs essential to national defense.

3. *Training out-of-school rural and non-rural youth.* This is done through instruction that will increase the effectiveness of youth for the defense of American democracy.

4. *Training for N.Y.A. enrollees.* The ob-

jective is to teach vocational skills, under public school supervision, through instruction related to the work experiences given by the National Youth Administration (*q.v.*).

5. *Engineering training*, later known as *Engineering, Science, and Management War Training*. This program is administered by the U. S. Office of Education in cooperation with accredited engineering colleges. The purpose of the program is to provide qualified personnel for engineering, science, and management jobs essential to the war.

Another program is sponsored jointly by the U. S. Office of Education and the Civil Aeronautics Administration. Its chief purposes are to provide airport attendants and other ground workers at airports.

Apprentice Training. Apprentice training is promoted by the U. S. Department of Labor, Division of Labor Standards, Apprenticeship Committee, working with state departments of labor, as well as by the U. S. Office of Education, in cooperation with State Departments of Education and local boards of education. (See APPRENTICESHIP EDUCATION.)

Civilian Pilot Training. The U. S. Department of Commerce, Civil Aeronautics Administration, with the aid of colleges, universities, and civic organizations selects persons who are well adapted for jobs as pilots, gives ground and flight courses approved by the C.A.A.

Army Air Corps. The War Department, Air Corps, sponsors a number of training courses in order to supply vocationally competent persons to service and repair all types of military aircraft. Individuals are trained for such jobs as airplane mechanic, armorer, welder, sheet metal worker, aircraft electrician, propeller specialist, assembly specialist, machinist, and instrument repairman.

Training in flying is also given by the Air Corps. Men are trained to be navigator-gunnery. Qualified men are also given training to enable them to become air corps squadron communication officers. Air corps squadron engineering officers are also trained. (See MILITARY EDUCATION.)

The Navy. The Navy administers an extensive program of training for naval aviation cadets. This instruction leads to a commission as ensign in the U. S. Naval Reserve, and offers an opportunity for a commission

in the regular Navy. The training also qualifies for pilot or for technical ground work with aircraft transportation service.

Maritime Commission. The U. S. Coast Guard gives training for the U. S. Maritime Commission, centered upon furnishing trained seamen for the U. S. Merchant Marine. This includes training for apprentice seamen, unlicensed seamen, and licensed officers.

The Maritime Commission also administers instruction for maritime cadets who are trained to become officers in deck and engine departments of merchant ships or U. S. Army transports, and cadet officers for ships of the U. S. Merchant Marine or U. S. Army transports.

Training Within Industry. The Office of Production Management established the "Training Within Industry" service in order to assist defense industries in meeting urgent needs for skilled workers and supervisors. The program is in charge of a director, an associate director, headquarter assistants, and a field staff. In 1941 the field organization was set up in 22 districts, representing all parts of the United States. The organization renders specific advisory assistance to defense industries. The assistance given includes (1) help in the analysis of training needs, (2) aid in setting up plant training programs, (3) making available the experience of other employers through headquarters and field clearance, (4) interpreting the needs of industry to government, state, and local agencies.

F.T.S.

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NATIONAL EDUCATION ASSOCIATION. The National Education Association is the largest national organization of teachers in the United States, numbering approximately 185,000 classroom teachers and ad-

ministrators. The organization is an outgrowth of the older National Teachers Association, which came into being in 1857 as a result of an invitation by ten state associations of teachers to all teachers in the country to form a national society.

Before 1900, membership in the association was small and unstable and the influence of the organization relatively unimportant. From 1870, the date of the formal founding of the association, until 1900 the membership increased from approximately 300 to 2,322. In the next twenty years, membership rose slowly to almost 10,000, and by 1923 it leaped to more than 118,000. This phenomenal increase in such a short span of years may be attributed in large part to the adoption, in 1920, of a plan of organization providing for government of the association's affairs by a representative assembly, composed of delegates from affiliated state and local organizations. This new procedure made it impossible for a group of teachers residing near the convention city to dominate, by sheer numbers, the proceedings of the national convention and the election of officers, and thus control the organization. Membership increased markedly when teachers who were unable to attend the convention found it possible to participate in the affairs of the association through the election of delegates.

With the growth in membership, the N.E.A. increased its services to the teaching profession. Since 1922, a research division has been active in investigating such professional problems as teacher tenure, the teacher's economic position, the nation's school building needs, the improvement of social studies instruction, and many others. In addition to making available the findings of its research division, the N.E.A. publishes a monthly journal, a volume summarizing the proceedings of its annual convention, and yearbooks and reports of its various departments.

The establishment of departments as a means of meeting the needs of special groups of teachers is another of the factors responsible for the tremendous growth of the association. At the present time, there are twenty-four departments (e.g., the Department of Superintendents) which, while functioning within the framework of the organization, provide teacher groups with an opportunity

to discuss problems relating to their own special educational fields.

In addition to the activities already noted, the National Educational Association assumes major responsibility for the preparation and dissemination of materials relating to the celebration of American Education Week, and participates in the presentation of nation-wide radio programs. The N.E.A. was instrumental in the organization of the World Federation of Education Associations. The National Educational Association cooperates with local and state teachers associations, and with the U. S. Office of Education in research and publication. Perhaps the most important work of the association at the present time centers about the Educational Policies Commission (*q.v.*), organized in 1935.

J.J.

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NATIONAL RESEARCH COUNCIL — See COUNCILS OF LEARNED AND PROFESSIONAL SOCIETIES.

NATIONAL SOCIETY FOR THE STUDY OF EDUCATION. This society was first organized in 1895 by a group of educators assembled at the Denver meeting of the National Education Association. It was named the National Herbert Society in apt appreciation of the source of stimulation of the serious interest of leaders of the organizing group in the scientific study of educational problems. The first executive council, which continued in office from 1895 to 1899, included Charles E. DeGarmo (president), Elmer E. Brown, Nicholas Murray Butler, John Dewey, Wilbur S. Jackman, Frank M. McMurry, Levi Seeley, C. C. Van Liew, and Charles A. McMurry (secretary). Five yearbooks and six supplements thereto were published by the society. They were made available for general distribution but were designed primarily to serve as the basis of discussion at national and regional meetings of the members.

In 1901 the society was reorganized under a new name, the National Society for the Scientific Study of Education. The obvious intent was to continue the prior emphasis on scientific studies of educational problems while recognizing the desirability of broadening the base of the society's studies and dis-

cussions to accommodate the emerging problems of a rapidly expanding system of education. In 1909, following several attempts to agree upon a shorter name for the organization, the word *scientific* was eliminated from the title and the present name of the society was adopted. Membership is open to all persons interested in promoting the purposes of the society, namely, to carry on the investigation of educational problems, to publish the results, and to stimulate the discussion of these publications. The present membership is about 1200 (1943).

The tradition of discussion meetings for the critical review of the yearbooks of the society has been maintained, each yearbook being formally presented to the membership at one or two program sessions of the annual meeting of the society held in conjunction with the February convention of the American Association of School Administrators. The selection of topics for treatment in the yearbooks has steadily broadened in response to the changing concepts, the innovating practices, and the extending researches which characterize the development of educational programs in America since the turn of the century. The forty-two yearbooks published since the reorganization of the society in 1901 cover topics of major interest to educators at the time of publication, and the series as a whole provides a serviceable overview of significant movements in education throughout the period. The demand for the yearbooks has developed to such proportions that the publication program is now the dominant feature of the society's activities.

The yearbook is published annually in February, usually in two volumes covering two separate topics of current interest. Each volume is prepared by experts in the field of the subject under consideration. Under the supervision of the board of directors of the society, a committee is selected to assume the responsibility for the preparation of each volume. The prestige attained by this series of publications is a notable tribute to the work of hundreds of members of the profession who have contributed time and talent to the enterprise.

As organized in 1901, the officers of the society were the president, secretary-treasurer, and an executive committee of four members. In 1909 a board of trustees of three members was established to serve as custodian of

property and to direct the financial transactions of the society. The office of vice-president was created in 1913. The constitution was revised in 1924 with provision for a board of directors to have complete charge of all of the affairs of the society. Two members of the board are chosen each year by vote of the members of the society, the term of office being three years. The secretary-treasurer is selected by the directors and is *ex officio* member of the board. After the death of Dr. Guy Montrose Whipple, secretary-treasurer for twenty-six years, the executive office of the society was moved to the Graduate Education Building of the University of Chicago, 5835 Kimbark Avenue, Chicago, Illinois. Until 1916 the yearbooks published by the society were distributed by the University of Chicago Press. From 1916 through 1942, the commercial agent for the sale of the yearbooks was the Public School Publishing Company, Bloomington, Illinois. In January, 1943, the agency was assigned to the Department of Education of the University of Chicago in order that the distribution of the yearbooks might be more readily coordinated with other activities of the society under the supervision of the board of directors. A complete stock of all yearbooks heretofore published by the society is maintained, single copies or full sets being available on order addressed to the present distributing agent.

N.B.H.

NATIONAL SURVEY OF TEACHER EDUCATION. In 1928, the American Association of Teachers Colleges, the Council of State Superintendents and Commissioners of Education, and the National Association of Deans of Education made a joint request to the Federal Government to include a survey of the education of teachers in the government's program of national surveys. The United States Commissioner of Education at the time, Dr. William John Cooper, with the assistance of these three organizations, procured from the Seventy-First Congress authority to make a survey of the education of teachers which was to extend over a period of three years and was not to cost in excess of \$200,000 (reduced later to \$180,000).²

This survey included a study of the qualifications of teachers in the public schools, the supply of teachers, and the facilities available and needed for teacher training, in-

cluding courses of study and methods of teaching. The National Survey staff pointed out, among other things, that the privilege of educating teachers should be reserved to institutions which are equipped adequately to do the job; that the state has a basic responsibility for teacher preparation; and that there is great need of a professional attitude towards teaching in all teacher-training institutions. A critical evaluation of the survey appears in the *Twenty-Third Yearbook of the National Society of Teachers of Education*.¹ (See TEACHER EDUCATION.)

D.H.C. and A.R.A.

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NATIONAL TEACHER EXAMINATION—See TEACHER EXAMINATION, NATIONAL.

NATIONAL YOUTH ADMINISTRATION, EDUCATIONAL WORK OF. The National Youth Administration (hereinafter called the N.Y.A.) was established by executive order of President Roosevelt on June 26, 1935, as an autonomous division of the Works Progress Administration, and with certain modifications and recent limitation of funds has continued to the present (1943). In 1940, the N.Y.A. aided 448,000 persons in its student work program (total earnings \$26,835,000) and 326,000 persons in its out-of-school work program (total earnings \$65,211,000). Its original general purpose was two-fold, namely, to provide funds for the part-time employment of needy school, college, and graduate students, 16 to 24 years of age, to enable them to continue their education, and to provide funds for the part-time employment of youth from relief families on work projects to provide valuable work experience and to benefit communities. Of these two programs, the former is generally termed the student aid program, conducted by college and public school officials, and the latter, the works project program.

In recent years the principal modifications have involved training, as well as work, for needy youth, an increasing liberal definition of "needy youth," greater independence of

NATIONALISM IN EDUCATION

status for the N.Y.A., and a redirection of the works program toward specific training of youth for war industries.

The administrative organization includes a national executive director (who serves also as deputy administrator of the Works Progress Administration), regional directors, state and district directors, and local project supervisors. A rather elaborate plan of national, state, regional and local advisory committees, and special advisory committees for the student aid program has been put in operation to aid in the formulating of general policies and operating regulations.

Educationally, the N.Y.A. has performed five general functions:

(1) The administration of the student aid program for high school, college, and graduate students, by which needy, worthy youth were enabled to enter and remain in school while working at various jobs designed to provide valuable work experience, either within the school or on off-campus public service assignments.

(2) The works projects program, which was designed principally to give out-of-school youth work experience and allied educational and vocational training to enable them to be placed in private employment. In 1942-1943 this phase of the program was concentrated increasingly upon intensive, short-course training for specific wartime industries.

(3) The guidance and placement service, which was designed to provide counsel and orientation for youth in occupational training and placement. In this connection, several comprehensive studies of youth were made by various agencies, thesis writers, and other research workers.

(4) The apprentice-training program undertaken by the N.Y.A. This was short-lived and was soon transferred to the Department of Labor, cooperating with the State Boards for Vocational Education that had similar programs already in operation in the states.

(5) The program of educational camps for unemployed women, which was of experimental nature and was found too expensive to maintain; it was replaced later by central training units for needy feminine youth in residence.

In a widely-discussed publication (Reference No. 5) the Educational Policies Commission of the National Education Association and the American Association of School

Administrators set forth views urging, as a matter of policy, the transfer of the educational functions of the N.Y.A. and the C.C.C. to regularly established national, state, and local public educational agencies, the gradual discontinuance of both emergency agencies, and the transference of the work function to the general agency or agencies of public works.

The experimental educational phases of the program of the N.Y.A. should provide an excellent foundation of experience for future ventures likely to be necessitated by the precipitous problems of the postwar era.

R.J.M.

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NATIONALISM IN EDUCATION. Nationalism in education aims, in its ultimate analysis, at the preservation and glorification of the state. The nationalist looks upon education primarily as an effective agency in the carrying out of governmental functions. The maintenance of education is considered a patriotic duty. The nationalistic philosophy conceives of education as having its greatest values in the provision of military preparedness and aggressiveness, the development of national wealth and economic independence, and the promotion of national unity through common ideals and traditions. Nationalism recognizes that education is an instrument which the state can use to defend and maintain itself and to achieve its nationalistic ideals; it believes that the state must depend upon education if it wishes to safeguard

NATIONALISM IN EDUCATION

itself against internal disintegration and external aggression. Few would question the efficiency of a national policy of education as a means of promoting national ends.

The principle of nationalism has been one of the most powerful influences upon the establishment of schools in the whole history of education. It was nationalism that stimulated the organization and development of the state-supported and state-controlled public school systems that are to be found almost everywhere in the world today. Wherever there has been the growth of a strong nationalistic spirit, there "schools and the means of education" have been encouraged and utilized as powerful agencies for the perpetuation and protection of the nation. Monarchies and republics alike have accepted the establishment and maintenance of public schools as a national policy. Nationalization of education has taken place under both the totalitarian and democratic forms of government. Under the former, education has been promoted to produce obedient, loyal, and efficient subjects; under the latter, education has been fostered to equip citizens with the knowledge, skills, and attitudes necessary for participation in a free representative government.

The concept of education for national ends arose as a defense reaction on the part of threatened peoples, and when a nation is at war the nationalistic philosophy of education is very likely to become dominant. The nationalistic policy of education in modern times originated in the French Revolution when the people were called upon to defend their newly won liberties against a coalition of foreign kings. The leaders of the Revolution, recognizing the need of keeping alive the patriotic impulses born among the masses of the French people, advocated the establishment of a state system of education through which the people might be informed of the advantages of the new system of government and instructed in their rights and privileges under the new order. Although they did not remain in power long enough actually to establish a workable system of state schools, such leaders as La Chalotais and Condorcet set forth in their writings the aims and purposes that were to dominate the national school systems established during the nineteenth century in many other countries, particularly Prussia and the United States. After

the crushing defeat of Prussia by Napoleon, Fichte advanced the idea that education's function was primarily that of building up and preserving the national welfare, and that the government must consciously control education and the schools to that end. Thus was begun a policy which has continued in Germany down to the present day, the control of the schools for the purpose of developing loyalty to the ruler and the nation and unqualified obedience to the laws of the state.

Nationalism has been a powerful force in the development of public school systems in the United States. A distinction should be made, however, between the traditional nationalism of a totalitarian state with its conception of citizenship based wholly on loyalty and unquestioned obedience, and the American ideal of a participating citizenship that develops its national loyalties out of a spirit of creatively cooperative effort.

Today a fundamental motive in education in the United States is the desire to use the schools to prepare our youth for citizenship in both state and nation. President Roosevelt voiced the sentiments of most of his predecessors when he said that the only way in which the representative form of government can persist is through an educated electorate. (SEC CITIZENSHIP, EDUCATION FOR.)

Nationalistic principles of education in accord with the totalitarianism of such countries as Germany, Italy, and Japan are motivated by a different spirit from that determining the educational principles and practices of a democracy. Germany, Italy, and Japan have established systems of mass education aimed at making their totalitarian forms of government successful. (See GERMANY, EDUCATION IN; JAPAN, EDUCATION IN; ITALY, EDUCATION IN.) For example, the Fascist leaders have taught through their schools that the individual is an instrument of the state; that the state has rights, but the individual has only duties. The slogan of Fascist education is "Believe, obey, fight." Hitler said most truthfully, "I have not educated German youth for twenty years for naught." Children have been thoroughly indoctrinated with the Nazi theories, and teachers have had to gain political approval more commonly than academic approval. In all school systems, democratic as well as totalitarian, provision is made for the careful training and selection of teachers by the

NATURAL CONSEQUENCES

state. Teacher-training institutions have been established under state control, and systems for the examination and certification of teachers developed. Even in the democratic nations, the question of academic freedom (*q.v.*) has sometimes arisen as an educational issue.

The nationalistic ideal emphasizes primarily secular and civic education; where religious and moral types of education are preserved, these are considered usually as agencies in the promotion of patriotism. Law-abiding morality is recognized as an essential of patriotic citizenship. Physical education is also considered an essential element in national school systems. The totalitarian schools place special emphasis upon training for health and physical vigor, parenthood, "racial purity," and strength. With the entering of the United States into World Wars I and II, physical fitness programs for more and better physical training were promoted in our schools. Vocational training also is given emphasis by national governments, especially for the rank and file of the people, who must be made vocationally efficient if the nation is to survive in its economic struggles with other nations. Nationalistic education is usually universal, compulsory, and even free, although seldom common in the true sense of providing equality of opportunity to all. Support is usually by taxation, and control is in the hands of officials appointed by the party leaders, if the government is totalitarian, or by the elected representatives of the people, if the government is democratic.

One of the most important steps in the development of nationalism is the creation of a common culture and unity of attitude, and so national language, literature, and art usually are emphasized in the schools of a nation. Next in importance to nationalistic educators is the teaching of the history and geography of their countries, although in the preparation of history texts no nation has been overzealous in presenting the whole truth, and history is often distorted in order to make it contribute to national ends. The central feature of most nationalistic courses of study is government and the duties of a subject or citizen. In the United States the teaching of "civics," as it is called here, has not only been emphasized but, especially in recent years, has been required by law.

Patriotic songs and martial music are dominant in national schools, in totalitarian states at all times, and in the democratic states at such critical times as when the nation is involved in war.

The world wars of our century have awakened in many educational leaders the realization of the inadequacy of any nationalistic policy of education that serves to develop a nationalism either imperialistically aggressive or provincially isolationist in character. They contend that national democratic ideals cannot thrive in a world of suspicious neighbors, and that national democratic citizenship achieves its full fruition only if directed toward the ideal of world citizenship. The failure of the League of Nations has served to emphasize the impossibility of achieving a community of nations out of a membership dedicated each to his own self-interest.

E.H.W.

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NATURAL CONSEQUENCES. The inevitable or necessary results arising from any set of conditions are *natural consequences*. They are the logical outcomes of a given situation. If painful, they are known as natural punishments; if pleasurable, they are thought of as natural rewards.

Natural punishment is the pain or suffering resulting as a natural and inevitable consequence of one's own misdeeds. Rousseau (*q.v.*) in his *Émile* made natural punishment part of his system of instruction. *Émile* thoughtlessly trampled a neighbor's budding bean patch, and his punishment was to retil the garden, plant a new crop of beans, and tend them carefully until harvest time. His thoughtlessness had deprived the neighbor of his beans; his punishment was that he restore them in such a way that the neighbor was not inconvenienced and that *Émile* himself realize

to the full the natural consequences of his thoughtlessness. The great advantage of natural punishment was held to be the removal of the personal element. Émile was not punished by his tutor, but by his own misdeed; no one but Émile suffered from his thoughtlessness.

The theory has obvious limitations. The most serious is that the severity of the punishment may be out of all proportion to the need for it. For example, the child who cheats on his homework may be punished eventually if he realizes that he has not mastered the material and thus receives a low grade as a result of his poor work, but, until then, should he be permitted to drift and later, perhaps, spend six months repeating the work of the grade? Again, his experience at cheating may lead him to believe that "crime" actually seems to pay and that his dishonesty appears to have helped him get a higher grade. Nature is not a reliable moral guide—it goes its amoral way unhampered by the responsibility of guiding the ethical development of each little transgressor.

The parent and the teacher will find it necessary to substitute insight and understanding for the oversights of nature. However, punishment should *seem* to the child to be a natural consequence of the offense. The child who is repeatedly careless in his homework assignments is asked to stay after school to do his work under the teacher's guidance. The teacher explains to the child that since he has demonstrated his inability to do his work at home, it is up to the school to afford him the facilities and guidance he apparently needs. Nothing of retribution is involved; if he cannot do his work at home, then "naturally" it is up to the teacher to give him the opportunity of doing it in school. The spirit is that of natural punishment, even though the form is artificial. (See PUNISHMENT.)

C.M.R.

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NATURAL PUNISHMENT—See NATURAL CONSEQUENCES; PUNISHMENT.

NATURALISM. The precise meaning of naturalism in education depends on its context, particularly on what can be inferred

as to its antithesis. One of the oldest and most persisting contrasts here is that between the natural and the artificial. The artificial points to something made by the art of man. Whether this handiwork be customs or schools, it will probably vary with time and place and man's individuality. The natural, in contrast, suggests great stability; it suggests the form things have had from the beginning (nature from *natus*, the past participle of *nasco*, to be born). This stability or dependability is more often known as the uniformity of nature.

A second contrast of long and important standing is that between the natural and the supernatural. Here the natural supposes that the explanation of the form of things as they are, is immanent in the physical universe and that unsolved riddles are to be approached empirically. The supernatural, by contrast, supposes that the natural offers only a limited and partial understanding of total reality. To understand what lies beyond nature one must ultimately depend on revelation.

Both of these interpretations of naturalism have affected the theory and practice of education. The first was involved in the contest between the Sophists with their educational cliché of "man the measure of things" and their critics who sought more or less to conform education to the law or uniformities of nature. The second became prominent as the Christian influence on education tended to demote the importance of nature, because of its fallen or corrupt character, and exalted the divine or supernatural. It was not, however, till Comenius in the seventeenth century and especially Rousseau in the eighteenth that naturalism became a *cause célèbre* in education.

Negatively, naturalism came forth as a protest movement. For one thing, as might be expected, it was directed against an education overburdened with the barren subtleties of theology and metaphysics. For another, it was directed against artificial convention represented on the one hand by the brittle and superficial formalism into which humanistic education had fallen and on the other by the stilted social institutions of the eighteenth century. Positively, naturalism not only emphasized the study of the rapidly growing natural sciences, but it also proposed the study of the child, not in opposition to nature

NATURE STUDY

as hitherto, but himself and his fellows as a part of the system of nature itself and his natural tendencies as the worthy point of departure for self-development.

It is from this source that the child study movement of the nineteenth and twentieth centuries stems. In this period, the scientific study of the child through the sciences of biology, psychology, and sociology thoroughly saturated education with the spirit of naturalism. To such an extent did education become naturalized that its aims were increasingly found inside nature; the natural and social sciences finally gained an ascendancy over the humanities in the curriculum; even moral education was often secularized; and the philosophy of education became prevalently pragmatic and experimental.

Formidable as this movement has become, it should be remembered that it has not totally eclipsed its old rivals, humanism and supernaturalism. Whether the teacher or society should guide (interfere with) nature or let nature take its course and whether a scientific and pragmatic education without reference to an immortal soul, to God as the origin and destiny of the child, and to grace and revelation as means of human improvement, is adequate, are questions which humanists and especially Catholics still press as energetically as ever.

J.S.B.

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NATURE STUDY. In its widest sense *nature study* means the study of all natural phenomena and is thus synonymous with natural science. By general agreement among writers, the meaning of the term has been restricted to include only simple observation of natural objects and the acquisition of information about them to satisfy personal curiosity, to meet simple practical needs, or to develop positive emotional attitudes towards the natural environment.

Nature study contrasts with natural science chiefly in that the latter, while incidentally attaining the ends just enumerated, seeks primarily to establish principles and generalizations in terms of which large areas of experience are explained and integrated. To the nature student the ardor with which a mother rat cares for and defends her young is significant for its intrinsic interest, its warning value, or its appeal to human sympathy; to a scientist it is a phenomenon to be compared and contrasted with analogous behavior in other species, to be explained after painstaking experimentation in terms of prolactin or other humoral or neural causes, and to be recognized in its proper relation to the perpetuation of the species.

Observation and description are the methods of nature study with little, if any, admixture of such other methods of science as exact quantitative recording, controlled experimentation, analysis, guarded inductive inference, classification, generalization, and proof. Characteristic procedures for young children of elementary school age include going on field trips, making collections, caring for pets, participating in dramatizations of their nature study activities, correlating nature study with literature, social studies, and the expressive arts, participating in informal discussions, and conducting various forms of manual activities, such as building bird houses.

As most frequently used, the term nature study is the designation of a part of the curriculum of the elementary school, but abundant instances may be cited in which its sense is extended to include similar study in the higher schools and even the out-of-school pursuit by adults of interests in nature. While the methods of nature study are suitable to the young for whom the more exacting methods of science are not yet possible, it does not follow that nature-study is not also adapted to the needs and abilities of adults. The lives of great naturalists such as Thoreau and Audubon, the popularity of adult hiking and nature clubs, the National Park Service of the Federal Government, and the wide popularity of nature books and magazines, lectures, and moving pictures are all convincing proof that nature study is not merely a matter for children.

Animals and plants constitute the principal field for nature study, especially the appear-

ance, habits, and life history of the organisms. Little attention is paid to internal anatomy, physiology, or systematic taxonomy. Rocks, soils, air, weather, and the heavenly bodies are commonly included in the scope of nature study, but physics and chemistry, whose subject matter consists essentially of principles, are for that reason given little attention.

The nature study movement in the elementary schools both in America and England covers roughly the last decade of the nineteenth century and the first two or two and one-half of the twentieth. Antedating it and probably leading up to it was the movement for "object-teaching" which drew its inspiration from Pestalozzi and was promoted by E. A. Sheldon and his associates at Oswego. William Torrey Harris, W. S. Jackman, and others protested in their writings against the dry formality of early attempts to teach science to elementary pupils and urged the livelier methods of nature study. As a result of the strong recrudescence of science teaching in American elementary schools after 1925, the subject is commonly designated as "science" or "elementary science," but, especially in the lower grades the methods, the spirit, and the content of so-called nature study remain dominant. (See SCIENCE, TEACHING OF.

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NAVAL EDUCATION—See MILITARY EDUCATION.

NEAR-SIGHTEDNESS—See VISION.

NECESSITARIANISM. Necessitarianism is the world view that (scientific) causation has already fixed in precise detail all future events so that in particular no room is left for "personal freedom," for practical responsibility, or for moral obligation. Such cosmic

determinism (or pre-determinism) is a doctrine of metaphysics rather than the result of scientific induction. It is the modern version or successor to the earlier doctrines of fate and predestination.

To the ancients fate seemed to mean that at least certain important, and possibly all, outcomes were fixed in advance—not indeed in terms of what moderns call causation but rather in spite of intermediate steps and efforts. Seen in this light, such a belief remains now only as a superstition.

Predestination seemed to the theologian the necessary consequence of God's power and God's knowledge. He made all things, He chose how all history should turn out, He foresaw all the details. The result thus appeared to Omar Khayyam:

Yea, the first Morning of Creation wrote
What the last Dawn of Reckoning shall
read.

Alexander Pope saw the result in terms of "free will":

And binding Nature fast in fate,
Left free the human will.

How to reconcile predestination and "free will" has been one of the abiding problems of theology. To the ordinary mind at least they seem antagonistic. Certainly if all future events have now been already fore-fixed in every detail, contingency loses its customary meaning if not all validity, while in consequence neither concern, nor effort, nor responsibility, nor moral quality could mean what now they seem.

Under modern science with its (earlier) insistence on causation as always and everywhere present and effective, the same problem of man's freedom to choose and effect presented itself, with physics seemingly on the side of predestination. Laplace, for example, not willing with Pope to leave "the human will" outside of Nature, thought that to an all-seeing intelligence, with causation everywhere at work, "nothing would be uncertain and the future, as the past, would be present to its eye." In other words, time also would go. Since this day many scientifically minded have "in theory"—but never in actual everyday affairs—accepted this view. It is this doctrine which we may call neces-

sitarianism (or cosmic determinism, or pre-determinism).

So strongly did this cosmic determinism become entrenched that many a scientist heaved a sigh of relief when the quantum theory seemed to support a principle of indeterminacy (Heisenberg's) for micro-physics. Now, thought they, we have sufficient leeway to admit a real place for effective human thinking and consequently for the long-needed human freedom and responsibility.

However, it seems sufficient to say that no empiric position is better established in human experience than that planning and effort do, within limits, change the course of events. To use scientifically established uniformities of nature thus to deal with a contingent situation is not to deny "causation," but to use it for precisely what it is worth. Such a view of determinism as over against "necessitarianism" assures to the scientist all the causation he can in fact prove, while it saves for the practical man and the moralist the "freedom" they demand.

It may be asked, What has necessitarianism to do with education? The answer comes as we consider the growing significance of social change in modern life and the increasing place of education in shaping that change.

So long as change did not obtrude itself strongly, man was content to accept more or less consciously one or more of the pre-deterministic outlooks, fate or predestination or necessitarianism. On either basis thinking became, consistently, a mirroring of what was otherwise fixed. Man did not, at least in any significant degree, change events. At most or at best he saw them, his thinking if correct reflected them. In the then prevailing opinion man was responsible for his soul's salvation—that depended upon his "free will." He was not responsible for making a better world, he couldn't if he wished to do so. (Mahatma Gandhi, who still lives in this outlook, told the writer personally that to speak of *making* a better world manifested a regrettable lack of humility.)

When, however, modern science began to bring rapid change into social life, the older doctrine that man could not effect changes in the world of affairs not only became intellectually untenable, but so untenable that a new outlook was called for to replace it. William James (*q.v.*) began then to talk about a "uni-

verse with the lid off" in place of the older "block universe," namely, a universe in which the future is not yet wholly fixed but man does help to create it as it comes. John Dewey (*q.v.*) made the general idea central in his philosophy and built thereon his social, ethical, and educational systems. On this outlook it is the duty of man to study his culture to reshape it better for human living, and education should so upbuild us all that we shall become increasingly active and effective in using thought creatively to make a better world. To find such an active and creative place for education it was necessary to displace the hindering doctrine of necessitarianism. W.H.K.

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NEGATIVISM. Negativism is the tendency on the part of an individual to resist everything suggested or commanded. It is particularly common among pre-school children and seems to reach a climax about 2½ to 3 years, decreasing greatly after 5. In milder forms, however, it may persist through adolescence and even into adulthood. This form of behavior may be either of the withdrawal or aggressive type, and is found among individuals of all degrees of intelligence.

In small children negativism may be caused by the children's desire for attention, their wish to assert their independence, or their attempt to imitate adults who frequently say "no" to them. Negativism is often their way of expressing their growing awareness of themselves as personalities. In older children or adults negativism may be shown by refusals to comply with requests, attempts to escape unpleasant duties (withdrawal), and tendencies to pout and to be quarrelsome (aggressiveness).

Suggestions which seem to be helpful in dealing with negativism are to avoid nagging or arguing with the child, to phrase requests or commands so that compliance is assumed, or to ignore refusals and resistance wherever possible. If negativism is used as a defense against feelings of insecurity, discovery and

removal of the causes of such feelings are necessary before adjustment can be effected.

F.K.M.

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NEGLECTED CHILD—See DEPENDENT CHILDREN; REJECTED CHILD; UNDERPRIVILEGED CHILDREN.

NEGLECTENCE. Negligence is of significance because normally no one may be held personally liable to pay for the damages resulting from an accident unless those damages have been the result of his own negligence.

Negligence consists of the failure to act as a reasonably prudent and careful person would act under the given circumstances. Reasonable prudence is determined in light of the ability to gauge or foresee danger. If, under the given set of facts, a reasonably prudent person could anticipate danger, the failure to act so as to forestall such foreseeable accident is negligence. The crucial issue is not whether one did foresee, but whether the law says that the mythical creature known as "a reasonably prudent person" should have foreseen an accident.

For example, a teacher who leaves dangerous chemicals readily accessible to students, a school bus driver who fails to stop his bus when surrounded by a swarm of pupils, a school board that provides improperly constructed shop equipment, are all guilty of negligence, since a reasonably prudent person would have foreseen that the given facts might lead to injuries. But the mere occurrence of an accident is not of itself sufficient to brand a teacher as negligent. If in the exercise of reasonable prudence there would have been no cause to suspect danger, the mere occurrence of an injury does not raise actionable negligence against the teacher. So, for example, there is no negligence in permitting a student to water a plant in a school conservatory, nor in allowing a child outside of the school building to bounce a ball on the street, even though injuries do in fact result from such activities.

Since negligence is the failure to act as a

reasonable person would under the given circumstances, the specific circumstances, obviously, alter the acceptable mode of conduct. Providing a referee may be necessary for a competitive basketball game, but not for free-play activity. Clearly the scope of safety precautions must be greater in a vocational shop employing lathes and power-driven machinery than in a library. What would be reasonable to expect under some circumstances could not be reasonably foreseen under others.

Furthermore, the scope of one's duties condition the nature of his obligations. A principal has more extensive responsibilities than a classroom teacher, and might be held liable for an accident during a school dismissal while the teacher of the class involved would not be negligent, since the teacher's duties would under normal circumstances be restricted to her own class, whereas the principal would be expected to make provisions for the dismissal procedure of the entire school or for the administration of the safety patrol system.

While it is normally true that liability follows upon negligence, there are certain *legal defenses* which nullify the effect of negligence. *Contributory Negligence* consists of negligence in respect of one's own safety or protection; just as others must act towards us with reasonable prudence, so must we act with reasonable prudence in regards to ourselves. The failure so to act, known as contributory negligence, absolves an admittedly negligent party of liability for an injury to which the injured party's own negligence contributed; so, a child old enough to know better is contributorily negligent for picking up a red hot poker. Another defense is called *assumption of risk*, and denotes legal recognition of the fact that voluntary participation in certain activities assumes the normal risks attendant thereupon; so, the candidate for the football squad assumes the dangers, and cannot ascribe them to another's negligence, of ordinary bodily contact; and the spectator at a baseball game, the dangers of foul tips. A third *legal defense* is the doctrine of *vis major*, or Act of God, or uncontrollable act of the elements. Also in the nature of a defense is the doctrine of *proximate cause* which requires that the injury complained of must have some substantial connection or causal

relationship with the alleged negligence before the admittedly negligent person may be held liable for the injury in question. (See LIABILITY.) H.N.R.

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NEGRO EDUCATION. The term *Negro education* has come to have general application to the problems incident to the education of the minority Negro race in segregated schools in the United States, and in colonial areas of European powers where Negroes live. The term is one of convenience, and it is unfortunate that the usage sometimes suggests the existence of essentially qualitative racial differences.

Negro education is co-extensive with the existence of schools enrolling only or principally Negroes. The area involved includes the seventeen states and the District of Columbia where the segregation of races in public schools is mandatory by law, in turn enforced by a public opinion founded in ancient traditional practices. There are also many segregated schools for Negroes in other states, principally in the eastern and middle-western states where the concentration of Negro populations within the last generation has resulted in public school segregation. Public demand for racial segregation in the schools appears to be a symptom of periods of racial maladjustment. In the pre-Civil War period, Negroes were generally excluded from public schools of all kinds in middle-western states; and they were educated at public expense only in separate schools in such states as New York and New Jersey. The extension of more liberal attitudes following the Civil War resulted in the admission of Negroes to the general public schools in most of the states of the North. Following the heavy migration of Negroes to northern urban areas after 1917, a considerable public opinion to segregate Negroes became manifest in those areas. In states where the laws forbid the principle of racial segregation in schools, the segregation of Negroes has been achieved by drawing school district lines to coincide with areas of segregated racial residence. To all practical intents and purposes, the elementary school Negro populations of many northern cities are as closely segregated from the elementary

white children as though they lived in Atlanta or New Orleans.

In addition to Negroes, other minority groups such as the Indians, Japanese, Chinese, "Mongolians," Moors, Eskimos, and Mexicans have been affected by segregating legislation, or custom, from time to time.

Of the 12,865,518 Negroes living in the United States in 1940, 9,904,619 lived in the Southern region, 2,790,193 in the North, and 170,706 in the West. Seventy-seven per cent of the race lived in areas of legalized segregated schools; perhaps the majority of the elementary school children in the North, and a large proportion of the high school educables were enrolled in schools which were, in fact, segregated schools.

The duplication of educational facilities for white and Negro children in the South, particularly, gives meaning to the term "Negro Education." Used at first for convenience, the term takes on new meaning as we understand more fully the complex differences in personality rooted in minority existence. The work of Allison Davis and Charles Johnson, and the recent investigations sponsored by the American Youth Commission have made a profound contribution to this enlarged understanding. Today when we speak of "Negro Education" we are thinking of a separate administrative structure, separated at the base but unified at the top in white administrators; but we think increasingly, also, in terms of a group of children and adults whose entire life is conditioned by circumstances peculiar to their existence as a racial minority. The American child is, in theory, to be educated for a world of equal opportunity; no limits are set upon his achievement. The same theory may apply to Negro children; but the necessity for realism in the face of the semi-caste status of the American Negro is much greater than that demanded for other American children and their schools.

In the light of this situation, *Negro Education* comes to mean the variety of realistic adjustments which must be made in educating—in separate schools—a group of children for whom the ordinary American principles guiding educational theory do not apply.

Standard tests when applied to a Negro population may be expected to show sub-standard achievement in terms of national

norms; a fact that may be explained either by basic racial incapacity, or by social and economic differentials. Vocational education may mean for the typical American school population an education in the skills and techniques requisite to initiation into the framework of American industry. For Negro children vocational education means the development of a program constantly shadowed by the knowledge that Negro students, as adults, will find entry into the industrial world difficult, if at all possible. School finance for the typical American population resolves itself into a problem of the electorate's deciding how much it will pay for the education of its children. For Negro children, the problem is immensely complicated by old attitudes hostile to extension of the education of Negroes, and by the fact that the Negro population of the schools is usually, in the South, a non-voting population.

The perspective of the record indicates great progress in the establishment of public institutions in which Negroes are being educated in the essential tools of the American culture. The percentage of Negro educables enrolled in elementary schools has, in the South, increased from practically nothing in 1870, to more than eighty-five per cent today. The considerable extension of educational opportunities reflected by this figure is shown also in the reduction of Negro illiteracy from a figure perhaps as high as 95 per cent at emancipation to less than fourteen per cent today. The scattered mission schools established by Northern philanthropy after 1865 have grown to comprehensive public school systems which, each year, reach larger numbers of children with much better equipped teachers and more satisfactory equipment. Secondary schools now enroll more than a quarter million Negroes; the percentage of Negroes 14-17 years of age enrolled in high schools is now approximately 25 per cent, five times as high as in 1920, although still hardly one-third of the figure among white educables.

The first Negro college graduate of record was John Russwurm, of the Bowdoin class of 1826. In 1922, according to Johnson, only 558 Negroes were graduated from colleges throughout the country with baccalaureate degrees; by 1936 the number was 2,108, and by 1942 in excess of 3,000. The small Negro

private colleges of a generation ago have been succeeded by better supported private foundations and state colleges with greatly increased facilities.

In the field of graduate instruction, Negroes must still get their advanced training in northern institutions, though a beginning has been made in the provision of graduate and professional education for Negroes. Particularly significant in its promise for the future is the cooperative enterprise in Atlanta, bringing together four undergraduate colleges in one organization, with a graduate school superimposed. While the segregated school as an institution has been upheld by the Supreme Court of the United States, the court has also held that where separate schools are maintained each state must provide *equal* facilities for study. (*Missouri ex rel. Gaines vs. Canada*, 305 U. S. 337, 59 S. Ct. (1938).)

In a sense, all of the problems connected with the education of Negroes in America are "special," in view of the unique status of the minority. The development and organization of curricula, the adequate training of teachers for the curricula to be used, the financing of the schools, and the administration and control of schools; each presents significant variations from what might normally be expected.

Curricula. This problem may best be illustrated, negatively, by the comment of a Mississippi legislator, when legislation regarding free text books was under consideration, that the Negro schools did not need to teach Civics, as the knowledge to be gained therefrom would be useless, and perhaps dangerous, for Negroes to acquire. There is further illustration in the historic controversy that raged thirty years ago among Negroes as between the Booker T. Washington (*q.v.*) "industrial education" school and the "talented tenth, liberal training" school represented by W. E. B. DuBois. In general this controversy may be said to have been resolved among Negroes, who recognize today that their greatest educational need is the provision of greater facilities of all kinds and on all levels. It is, however, still a question of moment among many white citizens and administrators. Negro schools of all sorts have derived their curricula from the formulations in vogue in schools in the American tradition; applied to the economically and socially sub-standard

NEGRO EDUCATION

Negro population, the result frequently is an even greater futility and inconsistency of formalized routine than exists in standard American schools. For example, the standard American curriculum may call for the use of textbooks about certain material, to be read at a certain rate per hour or day. A sub-standard, isolated white American rural population suffers marked disadvantages in adapting itself to this expectation. The sub-standard, isolated Negro American population, with only a very recent tradition of literacy, equipped with sub-standard reading skills, and devoid of the appropriate area of experience, finds itself even the more at an educational disadvantage.

As suggested above, much of the difficulty arises from the assumption that there is a standard American culture to which all children should, and do, have access; that there is a standard American school population; and that there is a standard American method by which educational processes may initiate all American children into the aforesaid American culture. The rapidly growing realization of the fallacies of such an argument, where Negro children in the mass are concerned, has already led to salutary beginnings of reform. The fact that teachers of Negro children are at least becoming aware of these difficulties is a great recent gain. In a sense, the problem is not primarily one only for Negroes; it is a problem of helping the entire American educational system become conscious of the wide gap between the theory of universal equalitarianism and the fact of individual, social, and economic differences so patent in our culture.

Finance. Children from a defective social and economic *milieu* need greater facilities to repair their initial handicaps than well-advantaged children and yet the whole history of American education reveals that we have consistently provided, in public and in private schools, better educational opportunities for the children with better initial advantages, and poorer opportunities for the handicapped child. This condition is aggravated where Negroes are concerned. As the American children farthest down in the economic scale, coming from the most illiterate stratum and the area of worst health habits and practices, they should logically require an extraordinary proportion of school

expenditures if true equalization of educational opportunity is to be achieved. In fact they receive extraordinarily low proportions of expenditures. This is true in the quasi-segregated systems of Northern cities as in legally segregated systems in the South. The differences may range from a State like Mississippi, where the annual per capita expenditures for Negro children are typically one-fifth those for white children, to a Northern city where per capita may appear to be more even, but where classrooms may be crowded, buildings antiquated, and inspired or sympathetic teaching absent. In the South the situation is complicated by the poverty of the section, and by the high proportion of educables—black and white—to adults and resources, as compared with other sections of the country. It is clear that there is no satisfactory solution to the problem of financing schools for both races in the South on an equitable basis, short of federal equalization.

Administration and Control. Negroes participate in the local administration of their schools as principals and supervisors, and occasionally hold state administrative positions. The Jeanes Supervisor, a county official originally made possible through the philanthropy of Miss Anna T. Jeanes, is now supported principally by local county funds. The supervisor serves generally as an Assistant County Superintendent for the Negro schools. It is generally believed among Negroes that the presence of members of the race on controlling boards would lead to more serious attention by those bodies to the needs of the Negro schools. H.M.B.

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(See also articles in the *Journal of Negro Education*.)

NEIGHBORHOOD SCHOOL — See ALL-DAY NEIGHBORHOOD SCHOOL.

NEPOTISM. Nepotism in its original sense referred to the practice of rulers and earlier popes of granting honors, dignities, offices, and the like to relatives, usually nephews. The meaning has been broadened to include similar practices followed by anyone in public office. Education is by no means free of nepotism. An investigation in one state revealed that almost one-third of the teachers employed had relatives connected with the school employing them. More than half of the states and many cities have passed laws and regulations to curb this practice. One of the most effective methods of controlling nepotism is to make provision for selecting teachers and superiors on a merit basis similar to that used by civil service bodies. (See TEACHERS, SELECTION OF.) J.E.G.

NERVE—See NERVOUS SYSTEM.

NERVOUS CHILD. There is no standard clear-cut definition of the term *nervous*, but it is generally used to describe behavior which is characterized by extreme activity, restlessness, anxiety, and irritability. This condition is found at all ages and at all levels of intelligence, and may vary from mild cases to those with advanced mental disorders.

The nervous child may exhibit a few or many of the following symptoms: overreaction to chance stimuli with many useless and diffused motor responses; squirming, fidgeting, and restlessness in sleep accompanied by dreaming or night terrors. He may show certain tics and mannerisms, fatigue easily, and have food dislikes. He is overenergetic (cannot relax), excitable, and tense; negativistic, irritable, and complaining. His emotions are easily aroused; he is oversensitive, extremely egocentric, and may show some specific, intense fears.

Nervousness may be due to the inheritance of a highly sensitive or poorly organized nervous system, or to glandular imbalance. The majority of cases, however, result from living in an atmosphere of excitement, anxiety, and insecurity. Usually, these children have unsolved personal problems and hence are in a constant state of emotional conflict. Their living habits are frequently not well regimented, e.g., insufficient sleep and irregular meals.

Because of wide variation in the causes and symptoms of nervousness, the treatment of each case is an individual matter. Some children are relieved by relaxation, massage, and the introduction of quiet, simple, wholesome living conditions, while others require medication or glandular treatment. The emotional aspects, however, are the most difficult to overcome. By removing the source of conflict with its accompanying tension, the neurotic child will be helped greatly. Parents and teachers often can ameliorate the situation by being calm; refraining from nagging and scolding about trivial things; not referring to the child's nervousness, especially in his presence; giving suggestions rather than commands; relieving him from too much pressure; and giving him a feeling of security. Special classes for nervous children do not exist in the public schools, because it is thought that their condition would be aggravated by imitating one another's behavior.

F.K.M.

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NERVOUS SYSTEM. The human nervous system is generally divided into the *cerebrospinal* and *autonomic* systems. The cerebrospinal system consists of the *brain*, or *encephalon*, lodged within the cranial cavity; the *spinal cord* lying in the vertebral column; and the *peripheral nerves* incoming from sense organs and outgoing to striped muscles, and covered by a special sheath called *myelin*. The autonomic system consists of clusters of nerve cells which lie outside, but mostly connect with, the brain and cord and innervate the heart, smooth muscles, and glands in the interior of the body. The main parts of the brain are the *brain-stem*, or the *medulla oblongata*; the *cerebellum*; and the *cerebrum*. The brain stem is the "lower center," or the "first connection," of the brain with the incoming and outgoing nerves of the heart, lungs, stomach, head, and face, just as the spinal cord is the "lower center" for the nerves of the arms, legs, and most of the trunk. The cerebellum has by all evidence much to do with the maintenance of bodily posture and equilibrium, but connects with peripheral nerves and thus with sense

organs and muscles only through the brain stem and spinal cord. The two most important portions of the cerebrum are the *cerebral cortex*, or simply the *cortex*, which is the gray matter of an estimated 14,000,000,000 nerve cells and immediate branchings forming the outer coating of the cerebral hemispheres, and the *interbrain*, or *diencephalon*, consisting of *thalamus*, *hypothalamus*, and *epithalamus*. The cortex is admittedly at the base of all our conscious experience and intelligence, while the interbrain presumably gives experience its vaguer groundwork and is claimed by many to play a significant role in feelings and emotions.

The autonomic nervous system differs from the cerebrospinal in that its nerves are not covered by myelin, and their conduction is about one-third as fast—roughly 40 meters as against 120 meters per second. It is seemingly a phylogenetically older system, and some of its sections appear to show even the primitive nonsynaptic (v. infra) nerve-net organization of the lowest invertebrates. It is, however, in the main subject to cerebral control, and the name "involuntary" often given to the organs it innervates should be construed in a relative sense. Not only may thought processes affect in some way heart beat, digestion, or kidney action, but even such local and ordinarily involuntary reflexes as the contraction of the pupil of the eye to an increase in illumination may be conditioned and thus somewhat brought under central supervision. There are two divisions in the autonomic system, the *sympathetic*, or *thoracic-lumbar*, lying in the middle of the body, and the *parasympathetic*, or *cranio-sacral*, centered in the upper and lower portions of the body. The two divisions respond differentially to a variety of drugs and their effect on behavior is mostly antagonistic. The first division, for instance, accelerates heartbeat, dilates the pupil of the eye, and inhibits digestive and genital action, while the second retards heartbeat, constricts the pupil, and stimulates digestive, excretory, and genital action. The fact that the organs innervated by the autonomic system are characteristically overactive or underactive during emotional states, together with the apparent correspondence between the antagonism of the sympathetic and parasympathetic divisions and the behavioral and experiential antagonisms in love and anger, fear and

appetite, mirth and grief, and general pleasure and displeasure, has singled out this system for special experimentation and has given rise to a good number of theories and speculations in neurology, psychology, and even philosophy.

The structural and functional unit of the nervous system is the *neuron*, consisting of a nerve cell as body and two kinds of special processes, the *dendrites* and the *axons*. Dendrites carry nerve impulses toward the cell body and are short and tree-like in appearance. Axons typically conduct the impulses away from the cell, are slender, and may reach a few feet in length. The usual term "nerve" refers to a bundle of axons, and "nerve fiber" to a single axon, the average diameter of which is approximately $\frac{1}{1000}$ of a millimeter. The impulse propagated along a nerve fiber and neuron in general is by all evidence electrochemical in nature, resembling the action in a galvanic cell, and, more specifically, the depolarization of a hydrogen film on a copper wire immersed in a concentrated acid solution. After a nerve fiber has been stimulated, a certain time has to elapse before it may be brought again into normal action. This is called the *refractory phase*, the duration of which is on the average about $\frac{1}{60}$ of a second. First there is an *absolute* refractory when the nerve fiber does not respond at all, then comes a *relative* refractory- when the fiber reacts only to stronger than normal stimuli, and then there is a *supranormal* phase when weaker than normal stimuli may also set it off. At any particular time, however, a nerve fiber will either respond maximally or not respond at all; this is known as the "*All-Or-Nothing Law*." Stronger stimuli cause more repetitive discharges in the fibers and also arouse more fibers to action so that resulting muscular and glandular responses are greater in magnitude. The minute electrical charges generated by nerves in action are called *action currents* or *action potentials*. In recent years it has been found possible to obtain such currents directly from the surface of the intact head, and these are known as *brain waves* or *electroencephalograms*. Electroencephalograms are of several types, differing in frequency, amplitude, and general pattern, and the differences appear to correlate with such psychological activities as thinking, sleeping, and dreaming, and with

age, intelligence, mental disease, and even personality types. Their discovery is no doubt one of the most interesting advances in contemporary neuropsychology but many of the experimental claims are in need of further checking and verification.

While the neuron is the unit part of the nervous system proper, the *reflex* is the unit of the complete sensori-neuromotor act. A model reflex need consist only of (1) a *receptor* or *sense organ*, which may range from the simple free nerve endings for transmission of pain to the elaborate apparatus of the ear or eye, (2) a set of *sensory* or *afferent* neurons carrying impulses to the spinal cord, brain stem, or interbrain, (3) a set of *motor* or *efferent* neurons taking over the impulses from the sensory neurons and carrying them to (4) a set of muscle fibers or gland cells called *effectors*, and (4) *synapses*, which are in the nature of one-way valves between the sensory and motor neurons and the motor neurons and the effectors, and which make the impulses irreversible and, incidentally, slow them up. In actuality, one or more sets of central or *internuncial* neurons intervene between the sensory and motor neurons, as normally even a low-level and fast local reflex receives central stimulation while it is elicited. Reflexes and their parts, in general, interact with one another. Two or more reflexes may, for instance, be compounded to form a chain so that the response of the first reflex becomes a stimulus for the second, the response of the second a stimulus for the third, and so on. Or the compounding may be circular so that the response of the second reflex becomes a stimulus for the first reflex, even as the response of the first reflex is a stimulus for the second. Again, two or more sets of sensory neurons may deliver to a common set of motor neurons, or two or more sets of motor neurons may have a common set of sensory neurons, and an allied or antagonistic relationship may exist, or may be established through conditioning, between them. In all the known properties of reflexes do permit the postulation, upon their bases, of a complete system of integrated and coordinated behavior, and such systems have been offered by Russian reflexologists, a number of American behaviorists, and some noted psychologists and biologists. However, there has been in recent years so much emphasis upon holistic philos-

ophies, total organization, and individuation of parts from wholes rather than integration of wholes from parts that the view that the reflex is the *main* unit of behavior claims the support of only a portion of contemporary thinkers and scientists. Still, this does not mean that the reflex is not one of the main units of behavior.

Another aspect of neural action which is of general interest is that of brain localization. It has been said above that the cortex is at the base of conscious experience. Different portions, or lobes and areas, of the cortex clearly appear to deal with different modes of conscious experience. Thus, the hindmost portion of the cortex, the *occipital lobe*, governs visual experience. There is a primary visual area, the stimulation of which merely produces what might be called meaningless visual sensations such as bright and flickering lights, and a secondary area which gives rise to more meaningful phenomena such as the sight of different objects and persons. Injuries to the primary area results in blindness but lesions in the secondary area impair only the individual's ability to recognize objects, distinguish colors, read, and carry out other forms of visual perception. Below the occipital lobe and in front of it is the *temporal lobe* concerned with hearing. Above this lobe and further to the front is the *somæsthetic area* for experiences coming from the skin and muscle senses, and still further forward is the *motor area* dealing with single conscious movements of various part of the body and the *premotor area* controlling combinations of such movements. The large front portion of the cortex, the *frontal lobe*, apparently serves as a general combining and synthesizing center of all experience. However, while there is little doubt that there is a division of labor in the human brain, some complex activities may still be a function of the cortex as a whole, and there is evidence for alternate paths and vicarious functioning, when under certain circumstances one part of the brain may take over the duties of another injured part. There is also some truth to the popular statement that "one may have too much brain for his own good." Some clinical studies indicate that cutting off portions of the cortex may result actually in better adjustment.

Neural basis of learning. The attempt to determine the neural basis of learning has

led to much speculation and research. Unfortunately, however, while the general hypothesis that learning and memory leave some trace or change in the nervous system is seldom contested, there is as yet no direct empirical evidence on the specific nature of this trace or change. Speculations about exact neurosynaptic and neurocellular modifications in learning are becoming less fashionable, and about all that contemporary neuropsychologists feel justified in discussing is the general type of such changes. Three theories are current: First, the *specific pathway hypothesis*, which assumes that learning produces changes in specific neural pathways. This is the oldest and most commonly accepted view of the three, but one that does not do justice to the phenomena of functional equivalence of stimuli and responses which manifest learning in unactivated pathways and unpracticed muscles. Second the *general field theories*, favored by Gestalt psychologists, which consider learning to involve action at a distance and changes in the fields of force, presumably electrochemical in nature, of the entire nervous system. Such theories are extremely general and extremely difficult to verify experimentally. Third, the recent *reduplication theory* of Lashley, which postulates that the neural effects of learning are reduplicated in wave fashion, in large areas of the brain, and which to a large extent meets the objections to the first two theories. To be sure, all three theories lack specific evidence and their construction is more the result of a felt need than of a body of facts

G.S.R.

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NETHERLANDS, EDUCATION IN THE. The national organization of the system of education in the Netherlands dates from 1801 when a law was passed introducing a minimum program for elementary schools and qualifications for school teachers. The establishment of private schools was per-

mitted but these were not subsidized by the government. Higher education was restricted to the State Universities of Leyden, Utrecht, and Groningen.

The Constitution of 1848 required the government to provide elementary instruction in public schools for all, but did not require that this instruction should be compulsory or free of charge. Public elementary instruction was further regulated by the laws of 1857 and 1878. Strong opposition arose against this system of maintaining public schools at government expense without consideration for the possible preference of a substantial percentage of the taxpayers for denominational schools. The opposition caused the passing of the law of 1889 and the introduction of a special paragraph in the Constitution of 1917 by which equal rights to subsidies from public funds were given to private (practically always denominational) and public schools. These laws require the maintenance of public schools supported from the local community funds wherever desired and the allotment of equal sums (figured by the costs per pupil) to denominational schools which may be founded if a certain number of parents wish to do so and which must be supported as long as they have sufficient attendance and meet the requirements of the law. All schools are subjected to inspection by government appointed inspectors. Compulsory attendance of elementary schools for all children between the ages of seven and fourteen was introduced by the law of 1899.

Secondary instruction was organized by the law of 1864 which established the *Hoogere Burgerscholen* (High Schools). The curriculum of these H. B. Schools, however, is much broader and more extensive than that of American high schools. This type of school was founded primarily for boys and girls who were preparing for positions in business and clerical work. The main subjects are science and mathematics in addition to a thorough study of three foreign languages (French, German, and English). The H. B. Schools developed, however, into preparatory schools for students who intended to study science, medicine, or engineering in one of the institutions of higher learning. The law of 1876 transformed the old *Latin Schools* into *Gymnasia*, preparatory schools in which Latin, Greek, and History are the

main subjects and which give access to the Universities. The laws of 1909 and 1918 applied to secondary schools the principles valid for the establishment of denominational elementary schools.

One of the main differences between the Netherlands and American school systems is that the former leaves only limited opportunity to the students to select their subjects. The students of the secondary schools have no choice of subjects during the first years of the H. B. School and the first four years of the Gymnasium. After that they may choose between two different groups of subjects. The H. B. School *A* devotes more time to all subjects connected with business; the H. B. School *B* and Gymnasium *B* center around mathematics and the sciences, while the Gymnasium *A* devotes most of its time to humanistic studies.

In addition to the school types mentioned above there exist several vocational schools and schools for less gifted pupils. Only a few schools with a curriculum specially planned for girls have been founded. Most schools for girls follow exactly the same curriculum as the boys' schools. The requirements of the law prohibit any significant differentiation between boys' and girls' schools.

Sports and games have only a small place in all grades of the system of instruction. Here we must take into consideration the fact that the climate does not favor out-of-door games in the same way as in the U. S. Swimming, however, has been made compulsory in many schools, especially in Amsterdam.

The law of 1876 reorganized the institutions of higher learning, recognizing three State Universities and one City University, that of Amsterdam. For engineering the Technical School at Delft was founded in 1905, followed by the establishment of an Agricultural School at Wageningen in 1917 and two Business Schools at Rotterdam and Tilburg in 1913 and 1927. After the law of 1904 had opened the possibility of establishing privately endowed universities (without substantial contributions by the government), two denominational universities were founded, the *Free University* of Amsterdam, supported by the Reformed Church (founded in 1881 and recognized as a university in 1904) and the *Carolus Magnus University* of Nymegen

NETHERLANDS, EDUCATION IN THE

(founded in 1923), maintained by Roman Catholics. The university courses are on a level with graduate courses at American universities. Most subjects treated in the American colleges are dealt with in the H. B. Schools and Gymnasias.

Pedagogics have found many ardent students among the Netherlands teachers; nevertheless, few original theories of pedagogics have sprung up in the Netherlands. The eminently practical sense of the Netherlands induced them to apply, with moderation and a certain conservatism, the best of what foreign countries offered in this field. The prevailing idea that in education the personality of the teacher counts for more than all theoretical knowledge kept the Netherlands teachers from theorizing. To have set an example of how the teacher may educate his pupils by educating himself, has been the merit of the most prominent of the Netherlands pedagogues of the 20th century, Jan Ligthart.

The Netherlands contributed greatly to the development of learning in the United States, especially in the field of botany (Hugo de Vries) and astronomy, through the influence of Dutch scholars who migrated to the United States during the last quarter of the century. In the purely educational field, the relations between the two countries have been less close. An attempt to bring closer contact between the universities of the Netherlands and those of the United States was made in 1921 with the establishment of the Queen Wilhelmina Professorship at Columbia University, through the cooperation of the Netherlands Government, private promoters in the Netherlands, and Columbia University. This pro-

fessorship of history, language, and literature of the Netherlands has been entrusted to Professor A. J. Barnouw. Professor Barnouw succeeded in arranging a first exchange of students between the Universities of Leyden and Columbia, but the outbreak of the war in 1939 hindered further continuation of this first attempt.

Nearly 18 per cent of the public funds in the Netherlands was spent on education (1938). To this we must add several millions from private funds.

The government paid practically all expenses for education. Even the universities have only small endowments. State supervision over all types of schools is very strict. All final examinations of secondary schools and universities are controlled by State Commissaries. How severe their final examinations are appears from the following figures:

Of 1,498 candidates who presented themselves for the final examination of the Gymnasias in 1937, 210 or 14 per cent failed to pass.

Of 4,772 candidates for the final examinations in the H. B. Schools 762 or 15 per cent failed to pass.

Of 566 students in the Faculty of Law of all universities combined who came for the first examinations 377 passed, for the final examinations 350 passed out of 484.

In the Faculty of Medicine these figures were, for the three principal examinations; 555 and 382; 615 and 394; 430 and 322.

The following statistics give additional information and indicate the relative importance of private and public schools.

Statistics:

THE EXTENT OF ELEMENTARY AND SECONDARY EDUCATION

Types of Schools (figures of 1938*)	Number of Schools			Number of Pupils		
	Total	Public	Private	Total	Public	Private
Kindergarten	2,284	230	2,054	213,198	32,785	180,413
Elementary Schools	7,014	2,577	4,437	1,144,074	364,776	779,298
Special Elementary Schools	128	55	73	12,466	5,872	6,594
Total Elementary Ed.	9,426	2,862	6,564	1,369,738	403,433	966,305
H. B. Schools	136	91	45	31,954	21,325	10,629
Lycea**	56	11	45	15,301	2,993	12,308
Gymnasias	52	33	19	9,287	5,097	4,190
Vocational Schools	716			134,855		
Total Secondary Ed.	960	135	109	191,397	29,415	27,127
Grand Total	10,386	2,997	6,673	1,561,135	432,848	993,432

*Total number of inhabitants of the Netherlands in 1938: 8,727,321.

**The Lycea are a combination of H. B. Schools and Gymnasias. The figures indicate clearly that the public was much interested in this new type of secondary school and took it up while the government apparently did not care much for it.

Institutions of Higher Learning:

	Number of Students
University of Leyden	2,384
University of Utrecht	2,670
University of Groningen	921
University of Amsterdam	2,438
Free (Reformed) University	611
Roman Catholic University	446
Engineering School of Delft	1,838
Agricultural School of Wageningen	409
Business School of Rotterdam ...	566
Business School of Tilburg	222

Total University Students ... 12,505

Expenditures for Education from Public Funds:
(1938)

For all types of schools:

From Community Funds, in guilders

(one guilder=0.52 dollars)

114,428,000 (out of a total of 776,418,000)

From State Funds

138,236,000 (out of a total of 714,190,000)

Total 252,664,000 (out of a total of 1,490,608,000)

B.H.M.V.

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NEURAL BASIS OF LEARNING—See NERVOUS SYSTEM.

NEUROSES (also called *psychoneuroses*).

This is the name given to functional disturbances, physical as well as mental, produced by emotional conflicts. Freud attributed a sexual origin to all neuroses, but a broader interpretation of their etiology is that they arise as a result of psychic conflict inherent in obtaining security and satisfactions in an environment or culture which is potentially threatening or dangerous. Symptomatic of the anxieties and fears developing from the mental conflict are the individual's compulsive acts, phobias, tics, hysterical paralyses, panic reactions, and somatic complaints. These symptoms may vary widely in their intensity and capacity to handicap the patient. The suffering they produce is real and not imaginary, the neurotically induced pain being as severe as that produced by organic or physical disturbances.

Neuroses differ from psychoses in that neuroses do not involve the total personality change, or produce the qualitative change in reality characteristic of psychoses.

Neurosis has been induced experimentally in both animals and children as a response to stress situations in which the individual feels

helpless through being confronted with a problem with which he cannot cope. As a result, he wavers between the desire to escape and the desire to solve the problem. Until a solution has been reached, he suffers from restlessness and tension; and, if the situation is prolonged, disorganization may ensue.

Although the fundamental structure of the personality has been set in the home by the time the child reaches school age—because it is to a great extent dependent upon the parent-child relationship—the teacher and the school environment can play an important role in either ameliorating existing emotional disturbances or reinforcing them. The overstrict home or the traditional schoolroom where restrictions abound is a typical environment for the development of neuroses in children. Furthermore, the inconsistencies of parents and teachers are often confusing to the child. For instance, a father may tell his child that to accept overcharge from a store is good business, while his mother may insist that it is stealing. His teacher, after urging him to show initiative and to be accurate, may reprimand him for being impolite if he criticizes or questions some of her statements. He is told to stand up for himself and not to allow others to pick on him, but he is also told that gentlemen do not fight. This usually creates conflict in the child's mind as to which course to pursue, with possible resulting neurotic symptoms.

Difficult as it may seem, however, the child must learn how to face the contradictions and inconsistencies in his environment. Nevertheless, the application of the principles of mental hygiene in home and school would reduce substantially the number of conflicts children meet. Until such re-education is effected, we shall continue to have many neurotic children who develop into maladjusted adults.
F.K.M.

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NEW-TYPE EXAMINATIONS — See OBJECTIVE TESTS AND EXAMINATIONS.

NEW ZEALAND, EDUCATION IN— See AUSTRALIA AND NEW ZEALAND, EDUCATION IN.

NEWSPAPER, SCHOOL—See PUBLICATIONS, SCHOOL.

NEWSPAPERS AND PERIODICALS, SCHOOL USE OF. Newspapers and periodicals have become a regular part of the collateral reading program in many social studies, science, English, and other classes. Recognizing the prominent part that such reading plays in our modern life, teachers are giving their pupils practical experience in reading, analyzing, and criticizing newspapers, news-magazines, and other periodicals. Several books guide the teacher in bringing accurate information to the pupils. On the high school and elementary school level Edgar Dale's *How To Read A Newspaper* (Scott, Foresman and Co., New York, 1941), has found much favor. Also usable on the high school level and excellent for teacher reference is George L. Bird and Frederick Merwin's *The Newspaper and Society* (Prentice-Hall, Inc., 1942). The *New York Times* issues a leaflet on newspaper reading and provides teachers with a manual and questions on the magazine section of the Sunday edition. Many local newspapers furnish sample copies for each member of the class studying a unit on the newspaper. Periodicals such as *Newsweek* furnish a teacher's manual for each issue. *Time* magazine supplies schools with current events tests covering the year's news. There are also several newspapers and magazines which are designed especially for school use. *Scholastic* magazine, *Current Events*, and similar periodicals are written especially for the school child. Other publications may be found for various grade levels.

One of the principal lessons which came out of the school use of newspapers and periodicals is that pupils must be taught to read critically. The analysis of propaganda has become an important activity in many schools. Pupils are urged to compare accounts of events in different newspapers, to check headlines against facts, to try to determine the editorial policies of various news-

papers and magazines, to use the newspaper index, to understand the sources of news, and to read further in order to obtain the necessary background for a better understanding of the events recorded. Thus, newspapers and magazines may vitalize school studies by illustrating current aspects of persistent problems in our history. They may be used to initiate the study of new problems and they may help to provide the pupil with an interesting and realistic fund of information. (See PUBLICATIONS, SCHOOL.) W.H.H.

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NICARAGUA, EDUCATION IN — See CENTRAL AMERICA, EDUCATION IN.

NON-PROMOTION—See PROMOTION.

NORM—See NORMS.

NORMAL PROBABILITY CURVE.

When chance operates upon a large number of instances (for example, when ten perfectly balanced coins are tossed in the air thousands of times and the number of coins that fall heads up after each throw is counted), and the results are reduced to a frequency graph, this graph so often is found to approach a symmetrical, bell-shaped curve with a specific mathematical formula that it is called the *normal probability curve*, or simply the *normal curve*. There are many instances where psychological and educational measurements of a very large population also result in a curve which approximates closely that of the normal probability curve, for example, the curve representing the frequency distribution of the intelligence quotients of large numbers of unselected children.

Since the normal probability curve has a definite mathematical formula, there are many very useful functions which such a curve can serve. It is possible, for example, to measure the area in that section of the curve included between lines drawn perpendicular to the base line. It is also possible to measure the height of the curve at any given point

along the base line. These two procedures enable us, for example, to compute the number of cases that are included in that part of the curve between the mean and a line drawn one standard deviation below the mean. Similarly, it is possible to compute the point in the distribution above which are found a given number of cases or a certain proportion of the entire distribution. It is also possible to find the number of cases at any score value in the distribution, for example, the number of children who have a certain I.Q. These illustrations indicate only a few of the many ways in which the mathematical properties of the normal probability curve can be put to use. Tables which are reproduced in all standard textbooks in educational and psychological statistics make it convenient to use the area relationships of the normal curve without having to employ mathematics formulae.

Although there are few instances in which educational data can be represented accurately by the normal curve, there are many instances where the difference is so small that it is not unreasonable to treat the data as though they were represented by the normal curve. Let us assume, for example, that a standardized intelligence test has been administered to all the children in a school and that the arithmetic mean has been computed. If the entire school were retested, the arithmetic mean of the second distribution of scores could be computed. If the school were retested an infinite number of times, there could be computed an infinite number of arithmetic means. It would then be possible to draw the graph representing the distribution of the arithmetic means of the intelligence quotients of those children. There is reason to assume that this curve would have the same formula as that of the normal probability curve. It is therefore unnecessary to attempt the impossible task of endless retesting merely to determine how widely the mean of the intelligence quotients will vary. By using the formula for computing the standard deviation of the mean, the principal can soon find the limits within which the "true mean" is almost certain to be found. If the principal computed the mean I.Q. as 101 and the standard deviation of the mean as .05, he is safe, in assuming, as far as chance factors are concerned, that even if his pupils were retested with an equivalent form of the test,

the mean intelligence quotient for his school would not be above 102.5 or below 99.5, and he can assume further that the chances are roughly 2 to 1 that the mean intelligence quotient would be between 100.5 and 101.5.

This explanation of the normal curve and its properties has over-simplified the use of the curve and it has omitted many basic considerations that must be understood by all who would use the normal curve in statistical work. It does, however, lead to three significant conclusions. (1) The normal curve is at the basis of many of our measurements of reliability (*q.v.*); for reliability is only a measure of the consistency with which we should get the same results if the investigation were repeated endlessly with similar subjects and similar materials. (2) The normal curve, based as it is on the assumption of chance factors operating upon a large number of cases, should not be applied thoughtlessly to the relatively small numbers of cases usually included in educational studies. It is, for example, a gross misuse of the concept of the normal curve for the teacher to use it as a basis for predicting how many grades of A should be distributed in a class of thirty pupils. (3) The properties of the normal curve rest on a mathematical basis that must be understood before the properties of the normal curve may be applied to a specific situation. Though it is a relatively simple matter to learn to use the convenient tables of area relationships under the normal curve as they appear in statistics books, teachers and administrators should hesitate to use these tables unless they understand what the numbers represent, and the conditions under which the use of these tables is statistically and educationally sound. J.J. and H.S.-I

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NORMAL SCHOOL. Historically, the normal school grew up in America to prepare teachers for the elementary schools, and despite changes its greatest emphasis is still in the elementary school field. Taking its characteristics from European examples and from American academies in the early nine-

teenth century, the normal school became a generally accepted institution of teacher education in America by 1900. Its greatest period of growth was prior to 1920, and since then it has gradually declined in number and importance as the teachers college (*q.v.*) took its place. Whereas there were more than 300 normal schools in 1900, there were only 50 or 60 by 1933. The word "normal" comes from the Latin via the French and originally meant a model or a rule, connoting that the object of the institution was to give teachers rules for teaching. The first normal schools in America were private schools appearing as early as the 1820's and 1830's. The first state normal school was established in 1839 at Lexington, Massachusetts. In the latter nineteenth century county normal schools, municipal normal schools, and high school normal schools made their appearance. By 1900 there were still slightly more private normal schools (including denominational schools) than there were public normal schools.

In the nineteenth century most normal schools admitted students directly from the elementary schools and even as late as 1900 the most common requirement for admission was only two years of high school work. The courses of study varied in length, two years being the most common, with the tendency in the last 50 years to increase the course to three or four years. In general most of the curriculum was devoted to a study and mastery of the elementary school subjects with additional work in philosophy, psychology, history of education, and observation and practice teaching. Although there was great variety in the courses taught, almost all normal schools included some sort of observation and practice teaching in a "model" school conducted either by the normal school or in the public schools.

Outstandingly influential normal schools prior to 1900 were at Oswego, New York, and at Worcester, Massachusetts. The New York State Normal College at Albany was an example of the trend after 1890 to extend the curriculum to four years, elevate the standards for graduation, and pay attention to the preparation of secondary school teachers as well as elementary. (See **TEACHERS COLLEGE; TEACHERS EDUCATION.**) R.F.B.

Reference.

C. A. HARPER, *A Century of Public Teacher Education; The Story of the State Teachers Colleges as They Evolved from the Normal Schools* (National Education Association, Washington, D. C., 1939).

NORMS. The average scores, usually the medians, which have been made by large numbers of children to whom a standardized test has been administered and which are used as the basis for interpreting the achievement of students to whom the test has been or will be administered.

The raw score which a pupil obtains on a standardized test has little meaning unless his performance can be compared with that of other pupils. Since a standardized test (*q.v.*) can be administered and interpreted uniformly in many schools distributed over a large area, it is possible to compare the score earned by one student with the typical scores received by the great number of other children to whom the test has been administered. Such typical scores, or scores normal for groups, are called *norms*. The groups for which such norms are obtained are usually age or grade groups, occasionally subject groups (as chemistry students in the high school), even less commonly groups selected on the basis of social background or mental level. Practically all published standardized tests have *national norms*, that is, they have the average scores of students from all parts of the country who have taken the test. These may also be *local norms* which are based on the average scores of all students in a given state, county, city, or even school. The most widely used types of norms are *age norms*, *grade norms*, and *percentile norms*.

Age norms (*age equivalents*) represent the average scores obtained by groups of pupils who have been classified according to age. The raw score of 65 which a given child has received on a standardized test becomes more meaningful when the teacher, after consulting the table of age norms, learns that this was the average score received by children who were 12 years and 3 months old. Most of the early achievement tests, following the example of the intelligence tests, supplied a series of age norms, despite the many disadvantages associated with their use. Great difficulty is ordinarily encountered in obtaining standardization groups below elementary school age or above junior high school age.

It is difficult, too, to set age norms for very high or very low scores. Another important limitation in the use of age norms lies in the fact that the performance of a pupil who scores above or below the mean of his age is compared with that of a pupil who is either older or younger, as the case may be. This becomes increasingly important as the pupil's score deviates by larger amounts from the average score of his own age group. The major advantage in the use of age norms lies in the fact that they are easy to understand.

Grade norms (grade equivalents) represent the average scores obtained by groups of pupils who have been classified on the basis of school grade. Using grade norms, the teacher can tell that the score of 65 which one of his students has received was the average score on that test received by children who had been in the sixth grade for three months at the time they took the test. In general, the advantages and disadvantages of grade norms parallel those of age norms. A further limitation of grade norms develops from the lack of uniformity of school systems throughout the country. Grade norms which have been developed for eight-year elementary school systems are not applicable to elementary schools organized in terms of a seven-year sequence. It should be noted, too, that curricular content varies considerably in different school systems; what one school teaches in the fifth year another may teach in the sixth year while a third may omit it entirely, thus reducing the significance of the grade norms provided by a given test.

The *percentile norm* allows a different type of interpretation. Percentile norms state the per cent of pupils of a given age or grade level that are equalled or excelled by the given pupil. Thus, each individual is compared only with others of the age or grade group of which he is a member. With the aid of percentile norms, the teacher knows that the student's score of 65 on that test is a higher score than was earned by 72 per cent of the twelve-year-old children who have taken the test. The major disadvantage of percentile norms results from the unequal units used—the difference between the fifteenth and twentieth percentiles is rarely equal to the difference between the fifty-fifth and sixtieth percentiles.

The most important advantages of using

norms are that they provide a useful basis for interpreting the significance of a score and that they facilitate comparisons of scores earned by students at different times or in different schools.

There are, however, a number of serious drawbacks to the use of norms, especially to the indiscriminating use of norms by teachers who see them only as numbers published in tabular form. From the discussion above, it is obvious that the norm is nothing more than the average score received by large numbers of children. It reflects what these children have achieved and not what they can achieve or what they should achieve. Even when the average level of achievement is far lower than it should be, the teacher is likely to be satisfied if his students' scores are at the norm, or slightly above it. Moreover, norms are usually the results of widespread testing and reflect average achievement of large numbers of children, including those who have been taught by mediocre or incompetent teachers using outdated procedures and inadequate facilities. In this respect, local norms often give a better basis for interpreting scores than do national norms. By seeming to exalt mediocrity as a goal, the unwise use of norms may keep many schools or teachers from being more effective. A child's achievement should be interpreted in the light of what he can and should do and in terms of what the school is trying to help him to become; it is grossly inadequate to interpret his achievement solely on the basis of the average scores earned by large numbers of children who may be different from him in many significant respects. C.C.R. and J.J.

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NORWAY, EDUCATION IN. From time immemorial the basis of Norwegian education has been the homes, and this is still so. Since the time of the Sagas, stories have been told and the culture and traditions of the country have been handed on to the children by permitting them to overhear discussions of civics, law, work conditions, and political matters. Parents also play a large

part in the administration and supervision of the schools.

History. Regular schools were founded in the Middle Ages by the Catholic Church for religious purposes. From about 1200 A.D. cathedral schools educated young men for the clergy. When the Lutheran State Church established confirmation, school laws (1739) were enacted providing for compulsory school attendance for all children to enable boys and girls to read the Bible. Illiteracy gradually disappeared. High schools were established in the cities while the cathedral schools, now controlled by the State, prepared for university studies. The free Norwegian Constitution (1814) put the power in the hands of the people, with the result that new school laws (1827), going beyond the religious purpose, were enacted. When full municipal self-government was introduced (1837) interest in good schools of different kinds increased sharply since they provided a basis for the people's full participation in political life. Teachers' colleges were established by the State Laws of 1860 which caused church supervision of public schools to be replaced by the direction of elected educational committees; compulsory school attendance was lengthened, and history, geography and sciences were introduced as subjects. When the parliamentary system was fully developed, new school laws (1889) established the *people's school* for the whole nation, governed by the people themselves. Better school buildings were provided, new subjects introduced, the period of school attendance again lengthened, the teachers' financial situation improved. The following years also saw great improvements in higher education. A State University was established in Oslo (1811) and since 1869 high schools and junior colleges have put the instruction of sciences and modern languages on an equal footing with classical instruction. The gradual emancipation of women opened high schools and colleges to girls, and, since the 1860's, gave them opportunity to be teachers. When the influence of the whole people again was increased through the growth of the Labor Party (Labor Government since 1935) new reforms brought great improvements to both primary and secondary education. This development was interrupted by the Nazi invasion (1940) which brought the quality of the education

to a severe test. Its superiority was clearly demonstrated, and the trials were turned into new inner growth.

Types of schools. a. The *primary school* is a State school supported by the local municipal authorities. It is compulsory for all children from the age of seven years. About 30 per cent of the children get no higher education. Nursery schools and kindergartens are not included in the systems; they are all private institutions and not numerous. Private primary schools are almost nonexistent; children from all different classes of the people go to the same schools. The "people's schools" consist of seven grades, the age of graduation is 14-15, and education is compulsory to this age. These schools work from 36-40 weeks per year with 18-33 hours per week. In 1935 they had 380,949 pupils, of whom 75 per cent went to rural schools. The number of children in one class is limited by law to 30. In rural schools more year-groups are often gathered, but the number is then correspondingly lowered, so that, e.g., in two-section schools the number of children in each room must not exceed 16. Illiteracy has been unknown for many generations. Besides instruction in the three R's the present schools teach religion, literature, composition, history, geography, sciences, zoology and botany, sewing and knitting, drawing, gymnastics, music; the boys are taught woodwork and carpentry, the girls advanced handicraft and cooking. Since 1939 English has been taught in the two highest grades in schools situated in the more densely populated areas.

b. *Secondary schools* all build on the foundation provided by the complete primary school. Most of them are under State or municipal direction. The more academic schools are the five-year *gymnas* and the three-year *modern school*. The *gymnas*, which prepare for graduation into the University, are divided into four branches, all giving training in Norwegian language and literature, foreign languages (English, German, and French), mathematics, biology and physical exercises, but each with a different emphasis: on Sciences, Latin, English, or Old Norse. More practical, but yet with general educational scope are the municipal *continuation schools* of one or two years, furnishing courses in bookkeeping, dress-making, trade survey, etc. The *youth schools* for students 16

years and up, and the *folk high schools* for young people 18 or older provide general education without any examination, mainly to farm and labor youth. In most instances they are privately owned by organizations, but supported and supervised by the State. In addition to literature and history, emphasis is given to such subjects as civics, folk-music, handicraft. Being practically the only schools with dormitories they also offer informal training in community life and social relationships. General and special training was also provided through the numerous study circles organized by trade unions, political parties, associations, etc., and often supported by the State.

c. The *higher schools* continuing the education on the basis of one or the other of the secondary schools are *vocational schools*, including craftsmen's schools, technical schools, business schools and special schools for a number of trades: 33 agricultural schools, 56 schools for household work, 8 schools for small-holders, 5 dairy schools, 5 horticultural schools, 3 schools for forestry, a number of schools for navigation, schools for miners, fishermen, nurses, social workers, etc. The teachers in the primary schools were trained in ten teachers' colleges, most of them maintained by the State. Courses for graduates of secondary schools took four years; a two-year course was provided for graduates from *gymnas*. The students of the teachers' colleges came from all parts of the people, making the relationship between the grade schools and the people very intimate. The teachers' college often was the first step in a political, literary, or other career as well. Special colleges provided training for kindergarten teachers, teachers of gymnastics, drawing and art, home economics, teachers for small-holders' schools, etc.

d. The only *University* (Oslo) consists of five faculties: Letters, Sciences, Law and Economics, Medicine, and Theology. The length of study varies, but is usually five to seven years. An associated Pedagogic College gives extra training to teachers for *gymnas* and *modern schools*. A School of Pharmacy is associated with the Department of Medicine. A University in Bergen is planned and some teaching has begun. Of university standing are the Dental School (Oslo), the Technical Institute (Trondheim), the Veterinary

College (Oslo), the Agricultural College (Aas), the Teacher's Graduate School (Trondheim), the Commercial College (Bergen), the Creative Arts' School (Oslo), and the Military Academies (Oslo and Horten). These are all State-controlled institutions devoted to training and research.

e. For *deficient* children the state provided ten schools. The schools for the blind, deaf and crippled all provided for vocational training and were compulsory for children 8-21 years old. The schools for mentally deficient children were either special schools in the cities for fairly high-grade defectives in each community, or State institutions providing full care for defectives of all degrees. Norway also has ten boarding schools for neglected children and five reformatories for young delinquents.

Administration. The schools were governed in a thoroughly democratic way. Each primary school had a "visiting committee" consisting of parents elected for this task. The chairmen of all committees in a district were members of the school management committee chosen by the elected municipal council. This committee had the authority to make decisions concerning the primary and municipal secondary schools within the limits prescribed by laws and the financial support allotted by the local municipal council. Higher public schools had boards of trustees appointed by the Ministry of Education. The teachers and parents always had representatives on these committees and boards. The State and municipal administration encouraged personal initiative and experiments in the schools but demanded control in all cases. The school management committees were usually progressive; their proposals often have been the basis for governmental motions carried by Parliament and thus accepted as laws for the whole nation. The schools in Norway are interdependent, all belonging to a unified school system. Students have to go through one school in order to enter one that is more advanced. But there is also the possibility of transferring from one to another in corresponding stages.

Economy. The Norwegians have made great sacrifices for their schools. Education takes more than 10 per cent of the State budget and is the largest item on the budget of cities and counties. Elementary schools

are always free and so are the continuation schools, many youth schools, the technical schools, most trade schools, the University and similar institutions (with the exception of some laboratory and examination fees). In the academic secondary schools about two thirds of the students pay a nominal fee. Books, writing materials, etc., are usually furnished free in elementary schools, rarely in secondary schools. The elementary schools usually give all children free medical routine examinations and treatment, free dental care, often provide school baths and swimming pools, and in many places daily serve a substantial breakfast without charge (the *Oslo breakfast*). At the University a great number of students are given "study loans" for their living expenses, free of interest during the period of study. Dormitories are rarely found in connection with schools or colleges, the exceptions being the folk high schools, household schools, and a few rural *gymnas*.

Methods. During the last decades the activity school principle was encouraged. Progressive schools and classes were established. Direct methods in language teaching and personal experience in other subjects have been emphasized. The children were expected to work for themselves, to cooperate, to carry responsibilities, and to show initiative. All schools were coeducational. Laws of 1935 compelled each school of more than 12 pupils to have a library, and cooperation with public libraries was very efficient as well. The National Broadcasting System (controlled by the State) provided many good programs for the different grades. Lively cooperation was also offered by museums, theatres, and other cultural institutions. Intellectual regimentation was disapproved; each child was encouraged to work according to his capacities. The aims of the *people's school* was to bring up efficient, right-minded citizens and to develop the personality and potentialities of each individual child. The children were an important part of the Norwegian community and recognized as such. The tradition of a working, dynamic democracy was passed on to them. That this educational work was successful, was fully proved by the events during the Nazi occupation of the country.

During Nazi Invasion. Attempts were made by the Nazi officials to establish the "New Order" in the schools as early as the

winter of 1940-41. These were met by protests and strikes begun in February, 1942 when all teachers were ordered to teach Nazi theories and ideologies and all children 10-18 years old were instructed to join Nazi Youth organizations. Teachers, parents, and the clergy protested strongly and general strikes of teachers and clergy followed. Concentration camps, torture, deportation, and slave labor were the fate of thousands of striking teachers. The schools were closed for months at the time, the University stopped, and the students were sent out as lumbermen. But the spirit of teachers and pupils was stronger than brutal force, and no concessions were made to Nazi demands. Teachers who remain manage somehow to continue their classes in private homes—although strictly forbidden by the Nazis. The whole population, including even the children, are willing to risk their lives to keep Norwegian education and its traditions alive. A.G.S.

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NOTEBOOKS. It is customary for teachers in secondary schools to require pupils to keep notebooks for various purposes in connection with the work of a class. With appropriate adjustments of content to the students' mental and educational maturity, notebooks are also used in the upper grades of the elementary school as well as in college.

The contents of students' notebooks vary considerably in nature and extent, and may include such items as assignments, class notes, outlines, directions for work, reading notes, references, maps, daily work, mimeographed or dittoed supplementary material, guide sheets, charts, drawings, and other illustrative material. Few schools have any uniform plans or regulations regarding notebooks. What the notebooks contain reflects the work done voluntarily by the pupils or that required by individual teachers. The teacher's failure to make good use of the notebook as a teaching device doubtless results in considerable loss in effective school work.

The types of notebook vary with the purposes for which they are kept. The loose-leaf type appears to be the one used most commonly because of its general utility and adaptability; the bound notebook has limited possibilities for organizing material and is apt to become a conglomeration of items. While personal preference and special uses are factors that should be considered in choosing a notebook for class use, the $8\frac{1}{2} \times 11$ inches, letter size, stiff cover loose-leaf notebook, that can be opened and closed easily, is best for general high school and college use. The paper it contains is of good size for themes or reports and is well adapted for filing by teacher and pupils. Such sheets provide liberal margins for corrections or additions. There is room enough for adequate spacing of charts or diagrams, and for better organization of notes. Further, a notebook of this size can accommodate mimeographed or dittoed material of the size usually furnished by the instructor, as well as maps and other illustrative materials. By using dividers, the student can make one notebook serve for several classes, and when necessary such a notebook may serve as a convenient writing pad.

The values to be realized through the use of notebooks depend largely upon how well pupils have been taught to make use of them. Experienced teachers have found notebooks especially valuable in two respects. The proper use of notebooks helps develop habits of effective note-taking both in class and in study for reference use in class and for review, habits that are essential for effective school work and systematic learning. This use of the notebook implies training in both the form of notes and in the selection of impor-

tant items or points to be included. Second, the use of notebooks helps develop training in good work habits in studying, encourages neatness and accuracy in doing written work, and gives practice in planning the organization of materials for ready reference or other uses. The mere copying of teacher-made outlines or dictated material should be discouraged as an unjustified waste of time. The taking of voluminous notes or the gathering of excessive quantities of materials should also be discouraged. Teachers who realize that the notebook is an aid to learning and not an end in itself find little value in students' keeping elaborately decorated notebooks with fancy lettering, red underlining, and other decorative impedimenta which overburden the students out of all proportion to the educative value of the result. T.M.R.

NURSE, SCHOOL — See **HEALTH; SCHOOL HEALTH SERVICES; SOCIAL SERVICE ACTIVITIES IN SCHOOLS.**

NURSERY SCHOOL. A school for very young children (eighteen months to four years of age) is commonly called a nursery school. This is not to be confused with the day nursery, a much older institution, which is a social welfare agency established to give day care to the child of the working mother.

As its name implies the nursery school has characteristics of both the nursery and the school. Because the children are so young, many responsibilities, such as feeding, usually associated with the home nursery have to be assumed by the teacher in the nursery school. Nevertheless, the nursery school is more than a home nursery, for its teachers are trained in the field of early childhood education and its procedures are consciously planned in terms of the child's total development.

Before 1900, schools for children under five years of age were fairly numerous in the United States and in many European countries. In 1909 the nursery school as known today began in London with the establishment of the McMillan Nursery School, an institution with an educational program for children of the slums. Nursery schools achieved prestige when The English Education Act of 1918 recognized nursery schools as part of the public system.

In the early part of the twentieth century

NURSERY SCHOOL

there was widespread interest in child study, research, and educational experiment in the United States and as a result of this, nursery schools were placed in colleges as laboratories for research in growth and development. Departments of sociology and home economics maintained nursery schools so that their students could have opportunities for observation and practice. This laboratory type had such a large and varied professional staff that the nursery school gained the reputation of being an expensive venture. When it was accepted as a community service, it was seen that the nursery school could be developed on a more economical basis without lowering standards.

About 1924, nursery schools in the United States increased rapidly. Private schools made them a part of their program and philanthropic groups established them in congested parts of cities. Mothers in college towns and suburban areas started co-operatives, sharing expenses and services. The more progressive day nurseries inaugurated nursery school programs for the children in their institutions.

The first public nursery schools were established by the Federal government in 1933. These were work relief projects and were planned to give paid positions to unemployed teachers, nurses, dietitians, cooks, porters, and others. Although the funds were provided by the Federal government, schools were directly under local boards of education. Except for these work projects centers, the nursery school is still a private institution in the United States. However, there is a growing demand for publicly supported nursery schools, as evidenced by legislative bills appearing in various states and by the fact that some local school boards are considering the possibility of establishing nursery schools. War conditions have tended to focus attention upon the care and education of young children as a necessary step in both wartime and postwar planning.

While the nursery school is still in an experimental stage with a flexible program, which is being constantly modified as research reveals new findings, these factors are generally accepted as basic: a health program, adequate space and equipment suited to the age level, a parent education program, and trained personnel.

Because it is recognized that children of nursery school age are more susceptible to diseases than are older children, a definite health program is considered an essential part of the plan. This includes daily morning inspection of each child, isolation space, and a careful periodic check up. The workers, too, are usually required to present certificates of health.

Although some nursery schools have a morning program only, it is generally accepted that a plan that includes a noonday meal and a long nap is of value. This longer plan enables the teachers to recognize and handle difficulties that arise from resistance to food and sleep.

Movable equipment which furnishes opportunities for the children to push, pull, carry, and rearrange is considered necessary for physical growth and for experiences that tend to improve hand, eye, and muscle co-ordination. Care is taken to avoid the use of equipment that might cause eye strain. Large blocks, climbing apparatus, bicycles, wagons, doll carriages, runways, slides, and house-keeping toys are some of the satisfactory materials. A schedule providing opportunities to play with these things followed by a more quiet period, then more activity followed by rest is characteristic of a nursery school day. All periods are brief, as the child's interest span is short. Space in which to move about freely is requisite, and in many communities the minimum amount of space is determined by local boards of health.

Since the young child is so dependent upon home factors, close cooperation of home and school is of necessity a vital part of every nursery school program. This is carried out through individual teacher-parent conferences and reports, group study and discussion, and often through parent participation in the administration of the school.

While right physical conditions are important, it is universally recognized that the most important part of the school is the teacher. A nursery school teacher is expected to understand the implications of children's behavior at different age levels and under varying conditions, and is trained to recognize behavior that needs guidance. A college or university degree in the field of child development is considered essential for a nursery school teacher.

NURSERY SCHOOL

State teachers' colleges and private training schools are now preparing nursery school teachers through courses in child development, nursing, dietetics, parent education, psychology, mental hygiene and community resources. Degrees in this field usually qualify a student to teach in the nursery school, kindergarten or elementary grades. However, the trend is definitely away from separation of these three levels of teaching and the thinking is more in terms of early childhood education.

Although the interest in nursery schools is increasing, there is still a difference of opinion as to their value and need. One extreme group argues that the mother is the logical person to care for her children and that the young child should not be sent out of the home for care and education. At the other extreme are people who believe the child should be placed in a large social unit at a very early age and for as great a part of the day as possible. The first group often admits that the nursery school is advisable for children whose homes are broken, while the other sees the nursery school as a universal need and a state obligation.

Between these two extreme views is the be-

lief that the nursery school benefits almost all children and mothers. Those holding this opinion regard the nursery school as a help to the home through the parent education program, and advocate the nursery school because it relieves the emotional tensions that arise from too constant companionship of mother and child. They are aware, however, that there have not been enough studies yet to show the effect of grouping upon the very young child, and so they realize that it may be possible that the nursery school is too stimulating for some children. They emphasize the fact that the nursery school is never a substitute for the home, but has social and intellectual values that are supplementary.

J.N.H.

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OBERLAENDER TRUST — See SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

OBJECT TEACHING. Jean-Jacques Rousseau (*q.v.*) in *Emile* stressed the need for presenting to his pupil real objects that they might be seen, handled, smelled, orientated, and put to use. Among those who became enthusiastic about the philosophy expounded by Rousseau was Johann Heinrich Pestalozzi (*q.v.*) who, in his *Book for Mothers*, took "sense impression" as his watchword and stressed the study of natural objects in place of words, and observation and investigation instead of mere memorizing. An American traveler, William C. Woodbridge, first brought the ideas of Pestalozzi to the attention of the American public in 1820, but it was not until 1859 that Edward A. Sheldon, inspired by an exhibit of models, objects, and methods-materials in Canada, succeeded in setting up, at Oswego, New York, a city normal school to train teachers in the object method of teaching. (See OSWEGO MOVEMENT.) Object teaching became somewhat of a fad in the 1870's and '80's. The movement left a vital impression upon American education. It changed classroom procedure from the old memoriter type of question and answer exercise to active class discussion, oral teaching, and demonstration.

Today object teaching is improved by better apparatus for demonstration and more readily available specimens. There has been a tendency to neglect the real in favor of representation of the real in the form of picture, slide, or motion picture. The better teachers are coming to realize that both the object and its representation have their place in the teaching process. The object possesses the advantage of producing a sense of reality and an appeal to the senses of taste, touch, sight, smell, and hearing. It is, of course, limited as to the size which can be made available. A picture or a model, such as that of a pyramid may be brought into the classroom

when the real object is unavailable. The object does not take the place of reading; properly used, object teaching should stimulate reading by creating a desire to know more about the object. In the broad sense, the concept of object teaching is embodied in current practice in the experience curriculum, (*q.v.*) commonly referred to as the Activity Program (*q.v.*). See SENSE TRAINING.)

W.H.H.

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OBJECTIVE TESTS AND EXAMINATIONS. Tests and examinations are said to be objective when all competent persons are in substantial agreement as to the answers. It must be recognized that objectivity is a relative term. At one end of the scale occur items which are fully objective, such as names, dates, formulas, mathematical computations, and the like. At the other end of the scale are located such discussion questions as "How can we best prevent wars?" and "What will the world be like in the year 2000?" It is probable that most concepts stressed in the elementary and secondary schools can be so worded as to be near the objective end of the scale.

The development of objective tests, often called *new-type examinations*, received a great impetus early in the present century as a result of several studies showing that the traditional essay examinations (*q.v.*) were highly unreliable. This unreliability, due in part to the limited sampling of the pupil's knowledge, resulted mainly from the subjectivity in marking the papers. It was found that not only will a group of teachers show wide disagreement among themselves as to the values assigned a given paper, but a second series of values assigned a group of papers by the

OBJECTIVE TESTS AND EXAMINATIONS

same teacher after an interval of time will disagree about as widely from his first series of values. In other words, the results showed clearly that teachers could neither agree with each other nor with themselves.

The objective examination appeared to be the obvious way out of the difficulty. Since the answers required were very brief, a much wider sampling of the pupil's achievement could be made in the time available for testing. Since the scoring was highly objective, it could be done quickly and accurately. Soon after 1920 such tests came to be used widely, enthusiastically, and often uncritically.

After a few years, however, discerning educators began to point out that objective tests afforded a sampling which was extensive in length but was likely to be extremely limited in depth. As commonly used, objective tests were restricted largely to the measurement of the pupil's memory for isolated factual knowledge. They touched but lightly upon understanding, judgment, and the ability to use knowledge in practical situations, and avoided altogether such intangible outcomes as attitudes, appreciations, interests, and ideals. The implication, however, that subjective tests do measure such traits is not justified. Recently, several promising developments have occurred which suggest strongly that these limitations are not necessarily inherent in objective tests but are due rather to insufficient skill in test construction. It is now generally recognized that any examination amateurishly made and used is almost certain to be a poor examination, and that poorly constructed objective tests are likely to be little if any better than the ordinary traditional examinations.

The value of any test depends upon the degree to which it satisfies three criteria; namely, *validity*, *reliability*, and *usability*. By *validity* is meant the extent to which the test actually measures what it is used to measure. In constructing or in selecting a test the teacher must consider what the specific objectives of instruction are for which measurement is sought, and then select the form of test that is most appropriate for this purpose. By *reliability* is meant the extent to which the test affords a consistent measurement. Two forms of the test, or two applications of the same test, must give essentially the same results. As a rule, the larger the test and the more objective the test, the greater will be its

reliability. By *usability* is meant the extent to which the test affords a measurement without unreasonable demands upon time, energy, or money. Most objective tests rank high in usability. The additional time required in preparing the tests is usually more than balanced by the greater economy in scoring the papers.

Objective tests are of two major types, *recall tests* and *recognition tests*. A recall test is one in which the pupil must supply from his past experience the correct response, rather than identify the correct response in a list supplied by the examiner, or judge the truth or falsity of a statement, as is done in recognition tests. Two common forms of recall tests are designated as *simple recall* and *completion tests*. It is difficult to make recall tests highly objective and at the same time avoid undue emphasis upon rote memory. In a *recognition test* the pupil indicates the truth or falsity of statements given, selects the correct response from several possibilities listed, or pairs related items arranged irregularly in two parallel columns. It is to be contrasted with the recall test in which the pupils must supply the correct responses from his own experience. Despite the fact that the scoring of recognition tests often involves correction for guessing (*q.v.*), it is usually more rapid and more completely objective than the scoring of recall tests. The most commonly used types of objective questions are:

Alternative-Response Test. A type of recognition test in which the student must choose the correct answer from two possible responses submitted. The commonest form of alternative-response test is the *true-false* (see below) type. Other common variations are *yes-no*, *same-opposite*, *right-wrong*, and *correct-incorrect*. In all such tests the factor of guessing (*q.v.*) operates at its maximum. In general, experimental studies have shown that alternative-response tests must be longer than other recognition tests in order to be equally reliable.

Analogies Test. In content, the analogies test involves the analogous, or parallel, relationship of two pairs of things, one number of the second pair to be supplied by the student. In form, the test may be either *completion* or *multiple-choice*.

OBJECTIVE TESTS AND EXAMINATIONS

Examples:

Complete the following proportions:

4 : 16 :: — : 81

white : black :: good : —

Write the number of the word that will complete the statement.

Tennessee is to Nashville as Georgia is to —.

- (1) Atlanta (2) Athens (3) Augusta
(4) Macon (5) Savannah

The analogies test is fairly common in tests of intelligence, but its use in achievement tests is limited.

Antonym Test. Same as *opposites test*. (See below.)

Best-Answer Test. A best-answer test is a type of multiple-choice involving fine discrimination. The pupil must choose the best answer from a series of options more than one of which has merit.

Example:

Choose the clause that will best complete the sentence. Then, in the parenthesis at the left, copy the number that is before the correct clause.

() Leguminous plants are important in agriculture because:

1. Bacteria associated with their roots return nitrogen to the soil.
2. They will often grow on soil too poor to support other crops.
3. The economic value of the hay crop is very large.
4. They provide foods rich in minerals and vitamins.

Cause and Effect Test. Cause and effect tests are useful in the social sciences, as well as in the physical and biological sciences. Sometimes the multiple-choice form is employed, in which the student is required to select the correct cause (or the correct result) from those suggested:

Example:

Of these four events one is a result and the other three are causes which contributed to it. Underline the one which is a result.

Desire for gold, voyages of Columbus, conquest of Mexico, character of Cortez. Sometimes the matching form is used; the student is asked to associate each result or effect with its cause or antecedent.

Completion Test. The completion test is made up of sentences in which certain important words or short phrases have been

omitted. The sentences may be disconnected or they may be organized into one or more paragraphs. Each omission is indicated by a blank for the student to write in the correct form, or the blanks may be numbered to correspond to a column of answers at the side of the page.

Example:

Supply the missing word or words.

The intelligence quotient is obtained by dividing the — by the —. Or, The intelligence quotient is obtained by dividing the -1- by the -2-.

1. —

2. —

Continuity Test. (See *rearrangement test* below.)

Disarranged Sentence Test. A test in which words listed in random order are to be rearranged so as to make sentences. Usually the words are rearranged mentally without being written down, the student merely indicating whether the rearranged sentence is true or false.

Example:

Rearrange each group of scrambled words into a sentence. If the resulting sentence is true, underline the word "true"; if it is false, underline the word "false."

grow and apples ground oranges

the intrue-false
true bought cannot friendship be.....true-false
fille est la frère son.....true-false

Identification Test. The identification test or exercise is accompanied by illustrations, usually in the form of maps, diagrams, or pictures, in which certain designated parts are to be identified or labeled. It is well adapted to measuring scientific information regarding the structure of plants, animals, and machines, as well as knowledge of map location in geography and history.

Matching Test. A test ordinarily consisting of two columns, the items in one column to be paired with those in the other column upon some basis suggested. It is a useful device for measuring the student's ability to associate events and dates, events and persons, events and places, rules, and examples, terms and definitions, causes and effects, and the like.

Example:

In which of the sources in the right-hand column would you look first to find the items

OBJECTIVE TESTS AND EXAMINATIONS

listed in the left-hand column? Put the number of the best source in the parenthesis before each item.

- | | |
|--|--|
| <p>() A discussion of the functions of Federal Reserve Banks</p> <p>() An opinion on a current issue before Congress</p> <p>() Gothic architecture</p> <p>() A synonym for the word <i>exorcise</i></p> <p>() The source of the Orinoco River</p> | <p>1. Atlas</p> <p>2. Economics Text-book</p> <p>3. Editorial Page of <i>The New York Times</i></p> <p>4. Encyclopedia</p> <p>5. Thesaurus</p> |
|--|--|

Mixed Relations Test. In this type of test the student is asked to indicate the one term in each series which is not consistent with the others. Sometimes used in achievement tests, the mixed relations test is more common in intelligence tests.

Example:

Cross out the word in each line that does not belong there.

Airplane	automobile	bicycle
	radio	train
la nuit	le chien	l'après-midi
	le matin	le jour

Multiple-Choice Test. A recognition test in which the student attempts to select the correct response from several options suggested. This is one of the most widely used of all test forms, and when carefully made is one of the best.

Example:

Within the parentheses, write the number of the word that best completes the sentence.

The amount of money earned each year by a savings account is called the 1. commission, 2. dividend, 3. interest, 4. premium, 5. profit ()

Opposites Test. An opposites test is a vocabulary test, usually in multiple-choice form, in which the student is to select the word in each list which is opposite in meaning to the first word given.

Example:

Select the word that is opposite in meaning to the first word given and place its number in the parenthesis.

Concave— (1) concrete, (2) complex, (3) complete, (4) convex ()

Rearrangement Test. A rearrangement test consists of a series of items in confused or random order to be rearranged in correct order according to a designated basis, such as chronological sequence, order of size, importance, etc.

Example:

Indicate by 1, 2, 3, 4, 5 the chronological order in which the following events occurred:

- | |
|-----------------------------------|
| () Purchase of Alaska |
| () Annexation of Texas |
| () Louisiana Purchase |
| () Lewis and Clark Expedition |
| () Annexation of the Philippines |

Several schemes for scoring rearrangement tests have been suggested but all of them are rather involved.

Similarities Test. A similarities test is a test in which each item consists of two (or more) terms which are alike in some way, together with a list of other terms of which only one is similar to the first two (or more). The student must identify the terms which are similar.

Example:

In each question there are four words alike in some way. The first three are given. Find the fourth among the remaining numbered words, and write its number on the blank line.

() barley, oats, rye . . . (1) alfalfa, (2) clover, (3) cowpeas, (4) timothy, (5) wheat.

Simple Recall Test. A simple recall test usually consists of a series of direct questions to be answered by a word or phrase, or of specific directions to the pupil. Simple recall tests are well adapted to, and are widely used for, the measurement of factual knowledge and for problems involving mathematical computation.

Examples:

Fill in the correct answer.

What is the capital of Peru? _____

What is the area of a room 12 feet by 14 feet? _____

Substitution Test. A test in which certain symbols are substituted for others according to a code or key. Sometimes used as a measure of intelligence.

OBJECTIVES

True-False Test. An alternative-response test which consists of a series of statements to be marked either true or false. Such statements must be worded with particular care to avoid ambiguous interpretation or unwarranted language clues which are called specific determiners. True-false tests are usually corrected for guessing (*q.v.*).

Example:

Indicate whether each of the statements is true or false by underlining either **TRUE** or **FALSE**.

TRUE—FALSE The United States Senate consists of two senators from each state in the Union regardless of the size or population of the state.

TRUE—FALSE The Speaker of the House of Representatives is elected by the popular vote of the people.

(See **ESSAY EXAMINATION, GUESSING, STANDARDIZED TESTS.**) **C.C.R.**

References.

H. E. HAWKES, E. F. LINDQUIST, C. R. MANN (editors), *The Construction and the Use of Achievement Examinations* (Houghton Mifflin Co., Boston, 1936).

J. S. ORLEANS, *Measurement in Education* (T. Nelson & Sons, New York, 1937).

C. C. ROSS, *Measurement in Today's Schools* (Prentice-Hall, Inc., New York, 1941).

G. M. RUCH, *The Objective or New Type Examination* (Scott, Foresman and Co., Chicago, 1929).

E. R. Smith and R. W. Tyler, *Appraising and Recording Student Progress* (Harper and Brothers, New York, 1942).

OBJECTIVES. Conceptions of objectives vary necessarily with theories of education. The chief current issue is one involving differences both in philosophy (values and accordingly aims) and in psychological outlook,—whether objectives are to be conceived primarily as subjects to be learned or in terms of living to be desired and character being built.

Objectives which stress subjects are long established and widely held. For two thousand years most people—educators and laymen—have conceived the aims of education to be the handing down to the young in systematic fashion of the racial inheritance as formulated by scholars and written in books. Though content and procedure have changed greatly through the years, this conception is

still dominant. Note, for example, the curricula of most schools and the expectation of most laymen that the school's job is to teach subjects. With this conception go also the assumptions that education is to prepare for adult living and that, psychologically, learning is apprehending, memorizing, storing for future use. The subject matter emphasis was reinforced (from c. 1800) by the theory of formal discipline (*q.v.*). Reasoning in mathematics, it held, strengthens the reasoning faculty and accordingly ability to reason in everything. Similarly, discriminating in Latin strengthens the faculty of discrimination; and so on. Though psychologists have definitely abandoned this faculty psychology, secondary schools and colleges still adhere to its assumptions and stress the subjects assumed to teach reasoning, discrimination, and the like. Latterly Bobbitt's extensive work on objectives (c. 1922), with manifold lists of subject matter needed by adults, still stressed subject learnings though it also came closer to living.

Objectives of the second type put first stress on helping young people enrich their lives and build the kind of character needed to continue living happily and effectively. The supporting reasons are both philosophical (valuing people and their living above subjects) and psychological (conviction that ends which are meaningful and immediately challenging to pupils release greater dynamic). One strand in these objectives, then, aims at the present living of pupils—that it improve in quality, that it demonstrate wholesome attitudes toward self and others and life situations; that the pupils grow in insight, in discrimination, in ability to profit by what the race has learned, that they grow in the understandings and ability necessary to control their own destiny. A second strand concerns the pupil's relationship to the social group—that he build attitudes, techniques, understanding necessary for effective living in democratic group life—in his immediate group and also in the wider community. To realize these aims requires, obviously, much book knowledge and also, to insure continued reading, a love of books. But in addition it requires actual experiences in doing, managing, carrying on living effectively and satisfyingly.

But merely teacher-objectives do not suffice.

Since pupils must develop not as yes-men, but as purposeful beings, they too must set up aims really their own. Teachers, then, work to help these pupil-aims grow; to include deeper insight, longer and broader views, better utilization of the race culture. Teacher foresight and planning for pupil growth are thus essential. But pupil-aims and pupil-planning are also essential if pupils are, through the practice of initiative, creativeness, and self-direction, to develop adequate adult personalities. (See AIMS OF EDUCATION.) M.Y.O.

References.

F. BOBBITT, *How to Make a Curriculum* (Houghton Mifflin Co., 1924).

J. DEWEY, *Democracy and Education* (The Macmillan Co., New York, 1916).

OCCUPATIONAL ADJUSTMENT — See OCCUPATIONAL INFORMATION; VOCATIONAL EDUCATION; VOCATIONAL GUIDANCE.

OCCUPATIONAL ANALYSIS. One of the first responsibilities that is faced by an instructor teaching a new trade or occupation is to determine what to teach. This involves making an inventory or analysis of the trade or occupation. Trade analysis for highly specialized workers performing single-skill jobs calls for inventories of only what is to be done—the specific operation concerned. For skilled crafts the analysis becomes more extensive.

The analysis is made by having an expert worker perform the job, one step at a time. The analyst who watches this performance should be an expert educator with a knowledge of the techniques of occupational analysis because we assume that the analysis is to be used for instructional purposes. Either personally, or with the aid of a stenographer, the analyst records each step by describing it in such a way that a learner can do the same operation by following the analysis. Such a description often specifies what the worker must do, and what he must know to do the job successfully as well as the tools and materials he must be able to use. The analysis should be tried out to test its accuracy and worth. This is done by placing the tools, materials, and analysis in the hands of several beginners who have not previously done the job, to see whether they can perform it by following the analysis. Extensive units of

work are divided into smaller parts. The information needed is often put in the form of *operation sheets*, *job sheets*, or *work sheets*, which serve as aids in teaching, but not as substitutes for the teacher. Thus job analyses serve as a basis for determining what should be taught, and when translated into instruction sheets, serve as aids in teaching.

Occupational analyses are also made for production purposes, or for purposes of making repairs, for the guidance, for example, of auto mechanics or aircraft mechanics. Sometimes the analyses are published in the form of trade annuals. (See also INSTRUCTION SHEETS.) F.T.S.

References.

C. R. ALLEN, *The Instructor, The Man and the Job* (J. B. Lippincott Co., Philadelphia, 1919).

Federal Security Agency, Office of Education, *Bricklaying, An Analysis of the Trade of Bricklaying Together with Suggestive Courses of Training for Apprentices and Journeymen Workers*, Vocational Division Bulletin No. 208 (U. S. Government Printing Office, Washington, D. C., 1941).

OCCUPATIONAL INFORMATION. In vocational guidance, *occupational information* refers to facts concerning the importance of the vocation, entrance requirements, lines of and opportunities for promotion, health and accident hazards, compensation, and other working conditions that are usually met in specific vocations or related groups of vocations.

In vocational education or training, the term is used in a somewhat different sense. The worker is expected to have or to develop trade skills and trade information or knowledge—the latter is usually in the nature of trade theory or related technical knowledge which some people call trade or occupational information. In vocational education a mastery of occupational information contributes toward vocational proficiency.

Occupational information may be secured directly, through observation, study, and discussion; or indirectly, through newspapers, periodicals, books, and from still and motion pictures. In view of the fact that there are more than 500 groups of occupations, containing in all more than 25,000 different payroll jobs, it seems wise to give carefully planned instruction about the more common, representative, and socially useful occupations to youth before the latter must select occupational pursuits. Spaulding and others

have shown conclusively that young people leaving school greatly need information about occupations and employment conditions.

Perhaps the most effective way of giving occupational instruction is through carefully organized classes taught by specially prepared teachers. The best time to do this seems to be during the junior high school years, and in the senior high school, before the pupils elect vocational curricula or go to work. Separate courses for girls and for boys are recommended wherever the enrolment warrants. Male teachers are preferable to women, as a rule, for teaching occupational information to boys and to men; women teachers are probably better than men, as a rule, for teaching occupational information about homemaking, nursing and other occupations for which women have special fitness and interest.

Visual aids of many sorts, well organized textbooks, ample supplemental occupational literature, trips to places in which men and women work, and talks by persons intimately acquainted with occupational requirements and employment conditions help to make courses in "occupations" or in "occupational information" interesting and educative. (See VOCATIONAL GUIDANCE.)

F.T.S.

References.

P. W. CHAPMAN, *Occupational Guidance* (E. Smith and Co., Atlanta, 1937).

M. E. LINCOLN, *Teaching about Vocational Life* (International Textbook Company, Scranton, Pa., 1937).

U. S. Office of Education, *Occupational Information and Guidance Bibliography 1937-1938*, Bulletin No. 212, Occupational Information and Guidance Series, No. 5 (U. S. Government Printing Office, Washington, D. C., 1941).

OCCUPATIONAL STUDIES. Studies of occupations are undertaken to determine the extent and nature of the labor supply, the current and probable future labor demands, and the kinds and extent of vocational training that are needed or anticipated. Occupational studies or surveys are conducted under the auspices of boards of education and other local agencies, as well as by referral agencies such as the National Youth Administration and the federal and state employment services. In addition, classes in the study of occupations are often asked to make studies which serve educational purposes even though they seldom contribute much

to what is already known by more advanced students of occupations.

Occupational studies of a more general and more extensive sort are undertaken by such agencies as the American Youth Commission of the American Council on Education—studies such as that made by Howard M. Bell and his associates of the employment conditions in Maryland, and of attitudes of the young people between 16 and 25 years of age in that state. Other extensive occupational studies for different purposes are made by the United States Department of Labor, by the American Federation of Labor, by the Congress of Industrial Organizations, by manufacturers' associations, and by health, welfare, and other groups. Still other studies are undertaken by the United States Department of Commerce, Bureau of the Census, and by state and local groups desiring information about occupations or persons employed therein.

Schools and colleges make occupational studies to determine teaching content, or to determine placement opportunities for graduates. Certain occupational studies are of a relatively broad nature and are perhaps better called studies of industries. (See VOCATIONAL EDUCATION.)

F.T.S.

References.

J. G. GLOVER and W. B. CORNELL, *The Development of American Industries* (Prentice-Hall, New York, 1932).

U. S. Department of Labor, Employment Service, *Dictionary of Occupational Titles* (U. S. Government Printing Office Washington, D. C., 1939).

U. S. Department of Labor, Employment Service, Division of Standards and Research, Job Analysis and Information Section, *Job Descriptions for Job Foundries* (April, 1938), *Job Descriptions for Job Machine Shops* (April, 1938), and many others (U. S. Government Printing Office Washington, D. C., 1935-38).

OCCUPATIONAL TESTS. The term *occupational tests* is somewhat more inclusive than *trade tests* because not all occupations or vocations are trades. A skilled trade is an occupation that requires an apprenticeship or learning period of several years. Some occupations, however, are learned in a few days, weeks, or months.

Occupational tests are of three types: oral, written, and performance. Persons may be selected for an occupation on the basis of one or more tests, both general and vocational. These may include (1) intelligence

OFF-CAMPUS CLASS — ONE-ROOM SCHOOL

tests, (2) aptitude tests, and (3) ability or achievement tests and personality tests. Since more workers lose their jobs through faulty personality traits than through lack of occupational knowledge or skill, and since intelligence, special aptitudes such as mechanical, musical or artistic, are important in determining fitness for an occupation or calling, it is clear that reliable testing for occupational fitness should be comprehensive and not limited to an occupational performance test, an occupational information test, or both.

Occupational tests may be given to assist in determining occupational aptitude, interest, progress, or achievement. They are given by prospective employers, employees, schools, school boards (for hiring shop teachers and others). Very few occupational or trade performance tests are standardized, though many have considerable reliability and validity.

Occupational information tests may be given orally, but are best given in written form. Their purpose is to find out what the individual knows about the occupation. Occupational performance tests are designed to test the person's occupational skills including how he selects and uses his tools and materials, and how he goes about his work. A half or a whole day is often required to take a trade performance test.

F.T.S.

Reference.

L. V. NEWKIRK and H. A. GREENE, *Tests and Measurements in Industrial Education* (John Wiley and Sons, New York, 1935).

OFF-CAMPUS CLASS — See EXTRA-MURAL CLASS.

OFFICE OF EDUCATION—See UNITED STATES OFFICE OF EDUCATION.

OFFICE PRACTICE. The increasing diversification of clerical activities in business offices made the establishment of office practice courses inevitable. The subject was introduced into secondary schools in the period beginning about 1930. It has two major purposes: (1) The integration of subject materials learned in commerce courses taken previously, and (2) the development of skills in the use of bookkeeping machines, duplicating machines, calculating and adding machines, filing devices, etc.

The subject is becoming increasingly popular and is being advocated by leaders in business education as a means of diverting stu-

dents from the traditional bookkeeping and stenographic programs. The subject is typically taught in the twelfth grade and on the post high school level. (See also BUSINESS EDUCATION.)

H.A.T.

OFFICE RECORD CARD — See RECORDS AND REPORTS.

OFFICIAL CLASS—See HOME ROOM.

OGIVE—See GRAPHIC METHODS; PERCENTILES.

OMNIBUS TEST. An *omnibus test* is one in which the items are arranged in one continuous series with one set of directions, rather than grouped into sections according to types or content. The omnibus form is not recommended for achievement tests but is sometimes used for intelligence tests. C.C.R.

ONE HUNDRED PER CENT PROMOTION—See PROMOTION.

ONE-ROOM SCHOOL. The *one-room school* and the *one-teacher school*, usually synonymous terms, refer to the school in which there is only one teacher for all of the pupils, regardless of their school grade. Although this type of school is most prevalent on the elementary school level in rural areas, it is not limited, however, to either the rural school or the elementary level.

In 1938 there were 121,178 one-room schools in the United States. During the period from 1924 to 1938 approximately 44,000 one-room schools were abandoned in the various states. The U. S. Office of Education reported in 1934 that there were in our nation probably more than 7,000 one-teacher schools with five or fewer pupils enrolled, and that approximately 1,000 of these very small schools were being operated with as few as one or two pupils.

The great number of one-teacher schools in the United States may be attributed in part to the early American philosophy that education is a local enterprise. This tradition, together with sparsity of population, dearth of wealth, lack of good roads and means of transportation in certain sections of the country, has made very difficult the consolidation of small school units into larger ones. (See CONSOLIDATION OF SCHOOLS and TRANSPORTATION OF PUPILS.)

Although it is generally conceded that the

disadvantages of the one-room school far outweigh its advantages, one should remember that the one-room school often is the only practicable type of school that certain isolated areas can maintain. It is generally an elementary school, and it does provide ready access for the very young and small children for whom attendance at the consolidated school would usually necessitate longer distances to walk or to be transported. The one-room school may also serve as a community center for families living nearby. It has been said, moreover, that the younger children learn much from hearing the recitations of older pupils who often serve as tutors for the younger ones.

Most studies have shown, however, that the one-room school is less efficient than the consolidated school. Generally the teachers in the small schools are not so well prepared, well paid, or well supervised as are their colleagues in the consolidated school. Buildings and equipment are poorer. Per capita costs are generally higher. Pupil attendance is below standard. Terms are often short, and the time the teacher may give each pupil or each pupil or each class is limited. (See **UNGRADED ROOM.**)

The trend in most states toward consolidation of smaller units is still moving forward in accelerated fashion. In areas where consolidation is not feasible, dormitory and outboarding schools are being tried. Correspondence lessons, itinerant teachers, and part-time schools are used in some sparsely settled countries, such as Western Canada and parts of Australia, and might prove feasible for similar areas of our own country. W.R.F.

References.

D. T. BLOSE, *One-Room Schools and Transportation of Pupils, 1937-1938* (U. S. Office of Education, Circular No. 195, No Date).

K. M. COOK, "Review of Conditions and Developments in Education in Rural and Other Sparsely Settled Areas." *Biennial Survey of Education in the United States: 1934-1936*, Vol. 1, Ch. 5 (U. S. Office of Education, Bulletin 1937, No. 2).

W. H. GAUMNITZ, *Economies Through the Elimination of Very Small Schools* (U. S. Office of Education, Bulletin 1934, No. 3).

ONE-TEACHER SCHOOL—See **ONE-ROOM SCHOOL.**

ONLY CHILD. One who does not have and never did have a brother or sister. While there are no statistically reliable differences

between *only* and *other* children at any age level, a few different tendencies may be found. *Only* children are less likely than others to have infectious diseases. In studies made of personality characteristics between *only* and *other* children, there is little general agreement except that *oneliness* is a factor of little significance. *Only* children seem to be slightly less timid, less extroverted, less self-sufficient; and to have somewhat larger vocabularies, be a little more ambitious, unstable and irritable than other children. When *oneliness* is unaccompanied by pampering there are practically no differences between the groups. Most of the assumed undesirable characteristics of only children derive from generalizations made on unscientific bases.

M.S.Q.

OPEN-AIR SCHOOL. Various kinds of open-air schools have been provided for children of lowered vitality. In them may be found children who are malnourished and anemic, tubercular control and cardiac cases, and others whose resistance has been lowered by disease. Some of the classes are called "fresh-air" classes or "open-window" classes; others "outdoor" classes and "outdoor" schools. These classes are not merely schools in the open air; they provide a health program which would be desirable for all children.

The characteristic features of the open-air school are: (1) cool, fresh air in place of the overheated air found in many classrooms; (2) provision for sunbaths; (3) small class size; (4) adequate medical supervision; (5) a school day which includes rest periods and is planned to avoid fatigue; (6) methods of teaching and a curriculum conducive to mental health; (7) special health instruction; and (8) the provision of an adequate diet. Among the benefits most frequently claimed are the improvement of health and physical tone, gain in health knowledge, a liking for wholesome food, increased mental alertness, and improved scholarship.

There are trends toward open-window rooms instead of open-air schools and toward classrooms with circulating air heated to about 60°F. in place of the unheated open-air classroom. A recent comprehensive survey of the education of handicapped children in New York City recommends, among other things, the reexamination of the criteria for

OPEN-WINDOW CLASS — ORGANIC DISORDERS

determining malnutrition and the return of children with temporarily lowered vitality to the regular classroom, with provision for rest periods under supervision. The most important trend is toward making the essentials of the open-air program available to all children.

R.M.S.

References.

D. COWIE, "The Open-Air Schools of New Zealand," *Journal of Education* (London), LXX: 376, June, 1938.

Education of Physically Handicapped Children (Board of Education, New York City, 1942).

M. W. TAYLOR, "Do Open-Air Schools Justify Their Extra Cost?" *Nation's Schools*, X:27-31, Dec. 1932.

OPEN-WINDOW CLASS — See **Open AIR SCHOOL**.

OPERATIONAL DEFINITION. An operational definition is a statement so made that it may be immediately translated into effective action. If curriculum objectives are defined operationally, it is possible to devise evaluation instruments or techniques with which to appraise them. Such statements of objectives are most often in terms of behavior expected of students in certain situation. The objective "To develop skill in typing" may be defined operationally as "To write 40 words a minute, with no more than two errors." The operational definition makes it possible to determine whether or not a student achieves the objective. See **EVALUATION**.)

V.E.

OPERATIVE TECHNIQUE—See **MORRISON PLAN**.

OPPORTUNITY CLASSES. The term *opportunity class* or *opportunity school* has been used to designate a class or a school administering to individual differences. It is one of a number of terms utilized in connection with the education of exceptional children. For the most part the term has been used to designate restoration, adjustment, or the coaching of classes or groups. In some school systems, however, it is used to designate ungraded classes, backward classes, or classes for exceptionally bright pupils.

The term has been used most widely in New York City, where classes designated as "Opportunity A-B-C-D Classes" have been organized. Their purpose is to develop a program that will provide individualized atten-

tion for pupils with behavior problems. The letters "A" "B" "C" and "D" are used to indicate the various age groups, as follows:

"A"—pupils with an average chronological age of less than ten years.

"B"—pupils with an average chronological age of less than eleven years.

"C"—pupils with an average chronological age of less than twelve years.

"D"—pupils with an average chronological age of less than thirteen years.

The Opportunity A-B-C-D Classes in New York City represent an opportunity to put into practice the adjustment point of view in dealing with the education of children.

In other situations entire schools have been designated as "opportunity schools." An outstanding example of such school is the Opportunity School of Denver, Colorado, which has had remarkable success in rehabilitating pupils. In this school pupils having behavior problems are brought together and a modified curriculum, designed to meet the needs of individual pupils, is placed in effect.

In other school situations "opportunity rooms" have been opened, in which pupils with either educational or behavior problems have the advantage of individual work and study with their teachers. Leading cities in the conduct of such work include Baltimore, Boston, Cleveland, Chicago, Detroit, Milwaukee, New York, Philadelphia, Pittsburgh, St. Louis, and San Francisco. (See **SPECIAL CLASS**.)

W.H.B.

References.

A. P. GOSSARD, *Superior and Backward Children in Public Schools* (University of Chicago Press, Chicago, 1940), 172 p.

A. O. HECK, *The Education of Exceptional Children* (McGraw-Hill Book Co., New York, 1940).

OPPOSITES TEST — See **OBJECTIVE TESTS AND EXAMINATIONS**.

ORAL READING—See **READING, METHODS OF TEACHING**.

ORDER—See **CLASS MANAGEMENT; DISCIPLINE**.

ORGANIC DISORDERS.—Organic disorders or defects include all diseased conditions or injuries caused by some physical disturbance of the body. These may be mild or serious, chronic or temporary; and may affect one particular organ, or may be widespread. Some organic defects are obvious,

e. g., hare lip and cleft palate, blindness, deafness, loss of limbs, etc.; while others are less easily discovered, e. g., brain tumors, syphilitic infections, tuberculosis, glandular imbalance, etc. Although the present trend is away from making a clear-cut distinction between organic and functional conditions, the majority of physicians still make such a division; and feel that the diagnosis and treatment of organic disorders is primarily a medical problem. The present discussion, therefore, is restricted to the psychological accompaniment of organic disorders, and to only those which are not considered mentally abnormal.

Where accident or disease results in permanent physical handicaps or disabilities, the effect upon personality development may be far-reaching. In general, it is not the handicap in itself which affects personality, but the attitude which the person assumes toward his condition. This attitude, in turn, is influenced greatly by the social and cultural situations involved. Thus, in our society cross eyes might make a girl feel inferior, whereas in Turkey such a condition would not be serious.

In many instances the existence of organic defects may cause the individual to develop feelings of extreme anxiety, inferiority, and rejection. For example, a child with a weak heart may concentrate upon his disability to such a degree that he may feel unable to participate in any kind of activity, or even to mingle with other children. Mild physical disturbances are frequently used, also, as means for escaping responsibility; or as an excuse for absences from school.

In cases of serious physical disability an important problem is to determine what the individual actually can do, and then to give him encouragement and intelligent guidance by directing his attention to his assets rather than to his liabilities. It often may be possible for an individual to overcome his handicap by direct compensation, e. g., restoring weakened muscles to normality through exercise and massage. Where the handicap is irremediable, however, indirect compensation, through activities not impeded by the deprivation, offers the best means for adjustment. Thus, the deaf individual can excel in situations where concentration and good vision are essential. It is important, however, not

to carry either type of compensation to extremes, or a warped personality will result. A major factor in adjusting to physical handicaps is the attitude which society has toward such defects. Regardless of the person's success in compensating for organic disabilities, if others continue to misunderstand, pity, or scorn him, he cannot make satisfactory economic and social adjustments. (See MENTAL HYGIENE.)

F.K.M.

References.

G. W. GRAY, "Anxiety and Illness," *Harper's Magazine*, CLXXVIII: 605-616, May, 1939.

A. H. MASLOW and B. MITTELMANN, *Principles of Abnormal Psychology* (Harper and Brothers, New York, 1941).

ORIENTATION. Orientation in education implies adjustment and the development of perspective. Few special efforts were needed for it until about a generation ago when students began to come to high school and college in large numbers and from a variety of backgrounds, and the curriculum began to include a large number of courses. Today a freshman orientation program and orientation courses are common, not only in colleges throughout the country but in some secondary schools, where the same general features are prevalent as in colleges. Most colleges have "freshman week" in which upperclassmen and faculty members explain to freshmen the chief campus features, college and community religious and other organizations, and the college regulations; as well as advise and help them not only in registering for their courses of study but also in otherwise furthering their education. Some colleges maintain camps where an extended freshmen picnic is held to help make the orientation informal, pleasant, and effective. Tests of intelligence, of scholastic knowledge in several key fields, and of health are also usually given at this time so that the college, as well as the student, can have the necessary data regarding his relative abilities and scholastic attainments.

Orientation courses are of two kinds: those offering students general suggestions covering college study and life and those introducing various curriculum fields. The former are usually given little or no college credit; the latter are regular curriculum courses. The general suggestions are usually given in compulsory lectures for freshmen concerning the history of the college, the opportunities which

ORTHOPEDIC DEFECTIVES, EDUCATION OF

college provides, budgeting of time, and methods of study. The need for orientation courses in the curriculum fields has arisen with the increasing number and complexity of curriculum departments. Some of these latter orientation courses give students a bird's-eye view of a department of knowledge, being arranged primarily for students who can spend only a term or two studying the subject; thus, freshman mathematics today may introduce the student not only to college algebra, trigonometry, and analytic geometry but to calculus and differential equations as well. Other orientation courses introduce students to such groups of departments as the social studies, the humanities, the physical sciences, and the biological sciences. They may be either for students planning to specialize in these fields or for other students. In the last decade the "general college" movement has been accompanied by orientation courses which are non-departmental in nature. These attempt to educate the student to understand not a department or group of departments but such phases of living as civic affairs, personal associations, relations with the physical universe, appreciation of the arts and other leisure activities, and health care.

The need and general trends of orientation efforts are undisputed. Freshmen probably need more special guidance now than ever before because of the complex conditions facing them both in college and in their own lives. What kinds of test, courses, and informal guidance will be most adequate can probably not be foreseen in detail. The problems of orientation are those of encouraging the best educational aims and the best means of beginning their attainment in a complex, changing world.

(See EXPLORATORY STUDY; GUIDANCE.)

M.G.F.

ORTHOPEDIC DEFECTIVES, EDUCATION OF. In the United States remarkable progress has been made in providing education for the crippled. As late as 1914, most of the education for the orthopedic was in four American cities. Now, however, recent national statistics, published in 1937, indicate that there are 301 city-school systems in the United States which report schools or classes for crippled children.

The types of organizations under which crippled children in the United States receive education are: (1) schools for crippled only; (2) schools for normal and crippled children; (3) schools for various types of handicapped; (4) schools or classes in residential institutions; (5) a single multigrade class in a school for normal children; (6) a unit or center of classes within a regular school for normal children; (7) a class in a convalescent home; (8) a class or classes in a hospital; (9) occasional cases of crippled children provided for under the regular educational organization.

The crippled are housed in various ways; most common are the one-floor building or cottage plan, the multi-story, old buildings remodeled, and rooms or units of school buildings planned for normal children. The advantages of the cottage plan are apparent. The whole school organization is on one floor, and it is quite easy for wheel-chairs to be moved from one part of the building to another, and for the children to go without assistance to any part of the school. The multi-story building is used in some centers, and is especially necessary where land values are high. It is necessarily compact and must be equipped with elevators and a sufficient number of operators, so that children may move at will from one floor to another. In many cities or small towns old public school buildings, or parts of buildings, have been remodeled for the use of orthopedic classes. Very adequate and excellent provision is often made in this way, and at moderate expense.

Regardless of the manner of housing, or the place in which the school is to be established, the principles of security and comfort should be kept in mind, and every opportunity for therapy and healthful development should be present.

The curriculum of the crippled child requires a good deal of consideration, and will of necessity vary according to the physical set-up of the school. Where crippled children are educated in public schools, the philosophy and methods used in teaching the crippled are usually similar to those which apply to the normal child. If there is a course of study for normal children, this is likely to be followed, with necessary modification, in the orthopedic classes.

The activity program (*q.v.*), in the hands

of a wise teacher, offers many ways of solving the problems which arise due to age range, variance in ability, the necessity for multigrade classes and interruptions in the schedule of the crippled child. Because of the necessity for individual attention and because of the advantages flexibility offers, progressive methods are extremely satisfactory in the orthopedic classroom.

Most orthopedic children need an enriched program, since many have had long periods of hospitalization, confinement at home, limited social experience, and little opportunity to observe the world in general. Still others come from underprivileged homes. It is the responsibility of the teacher to provide situations which will give the child enriched experiences not only in everyday living and in academic work, but also in the arts and the cultural heritage. A well-balanced curriculum also should make provision for recreation, guidance, and club work; if the school does not assist in these things, the average crippled child may have a narrow life. The planning of a schedule often proves to be a very complicated problem. Prolonged absences, individual variations within the group, necessary interruptions for medical examinations, physiotherapy, rest periods, brace fittings, and other special services call for an extremely flexible program, which, of course, is essential to the best interests of each individual child. Another problem which complicates curriculum planning is the fact that many children are over-age, and retarded in school. Therefore the social and mental ages, as well as the actual classroom achievement, must be carefully considered by teachers and administrators.

Few specific studies of the intelligence of orthopedic children have been made, but the limited investigation thus far indicates that the orthopedic child tends to score on the Binet Test slightly lower than the normal child. It is likely that many factors are responsible for this: there are certain groups of orthopedic children who are not physically able to compete on standardized tests.

While it is true that the current century has witnessed remarkable advances in the development of the program for the crippled, still the incompleting task remains a challenge to the future.

In considering the unsolved problem it is important to call attention to the fact that

first and fundamental to the success of future programs is the necessity for adequate means for discovering the crippled. Every orthopedic child in the United States should be registered for care, education, and treatment.

R.P.M.

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ORTHOPSYCHIATRY. Orthopsychiatry is a term identifying the integration of the four professions, psychiatry, pediatrics, psychology, and psychiatric social work, for the purpose of the study and treatment of disorders of behavior and personality. It is an outgrowth of the Mental Hygiene and Child Guidance movements. It is demonstrated in the functioning of the average child guidance clinic where the four disciplines, working co-operatively, make a more valuable integrated contribution than could be made individually. (See CHILD GUIDANCE CLINICS; MENTAL HYGIENE.)

M.S.Q.

OSWEGO MOVEMENT. An organized attempt was made in 1861 at the State Normal School at Oswego, New York, to introduce into the United States the more significant aspects of Pestalozzian ideas of educational practice. (See PESTALOZZI.) Like that of Comenius and Rousseau (*qq.v.*), Pestalozzi's thinking represented a break with the narrowly conceived educational concepts and practices of his times. The "father of manual training" believed that schools should prepare for life in the home rather than lead away from it, that manual labor is an important means of education, and that the use of objects, specimens, and models is indispensable in teaching.

Foremost among those who fostered the spread of Pestalozzianism in this country was Dr. Edward Austin Sheldon of the State Normal School, Oswego, New York. He was one of those men of idealism, courage, and strength who make an institution. He brought to Oswego Miss Margaret E. M. Jones of London, and Herman Krüsi, Jr., the son of one of Pestalozzi's most successful associates. These and others pioneered at Oswego, and were so successful that educators spoke of the educational influence radiating from there as the "Oswego Movement". Most popular was

OUTDOOR CLASS (SCHOOL) — OVERLEARNING

the concept and the practice of studying the natural object instead of merely reading about it; of encouraging free discussion rather than calling for robot-like reproduction of words in books. (See OBJECT TEACHING.) The object-lessons as taught at Oswego became the talk of educators far and wide though not all the comments were favorable. What Dr. Sheldon of Oswego, his associates, and followers have done to modernize the practice of elementary and, through the latter, of secondary education, will not soon be forgotten. In spite of numerous instances of the later formalization of miscellaneous fact teaching which aroused unfavorable criticism, the movement paved the way for more thorough training of teachers and for the vitalization and enrichment of teaching methods in elementary and secondary schools.

In recent years the State of New York has erected, as a part of the Oswego Normal School, one of the finest industrial arts teacher training units in the United States. F.T.S.

OUTDOOR CLASS (SCHOOL)—See OPEN AIR SCHOOL.

OVERCOMPENSATION—See COMPENSATION.

OVERGROWN CHILD. The term *overgrown* may be applied to a child whose height or weight markedly exceeds the norm for his chronological age. Such conditions may be caused either by temporary or permanent glandular imbalance or by faulty diet; or it may arise from hereditary factors or from a very wholesome and adequate diet. The mere fact that a child is taller or heavier than are other children of his age may have little emotional significance; in fact his superiority in these respects may be an important asset in his adjustment both as a child and as an adult. It has been found, for example, that leadership among children is often associated with superior physical development. Surprisingly enough, the overgrown child may also find that his height and weight may affect his emotional adjustment adversely. The child who is heavier than his classmates may be the subject of ridicule and may even be unable to participate in the usual games played by children of his age. The overgrown child may appear to be much older than he really is and may be expected to have the mental ability of the child of the age level at which

he appears to be rather than that of a child of his own age. As a result, an overgrown child of average or even slightly superior mentality may be regarded by others as being below average in mental ability. In child society, any youngster who is different from the other children may find that his difference may be either an asset or a liability. Whether the child's greater height or weight improves or retards his emotional adjustment depends largely on the way in which this trait is regarded by his friends and by himself. This attitude, in turn, depends on the attitudes of parents and teachers. (See MENTAL HYGIENE.) R.V.M.

OVERLEARNING. To the psychologist, *learning* means the ability to make one correct reproduction of the fact or skill that is being studied; once a fact or a skill has been learned any subsequent repetition of it constitutes *overlearning*. Thus, the first time a child does a division example correctly he has *learned* division and the first time the child changes *he don't* to *he doesn't* he has *learned* to say *he doesn't*. The teacher is usually more concerned with overlearning than is the psychologist, for the teacher knows that the mere fact that a youngster has made the correct association once does not assure lasting understanding or skill. While the teacher is interested in the psychological problems of learning, he is no less concerned with the problems of overlearning. Overlearning need not be wasteful; indeed, effective overlearning is essential if permanence of improvement is to be effected.

The motivation of overlearning is often as difficult as, if not more difficult than, the motivation of learning. The pupil who sees the necessity for finding the area of the schoolyard may see no reason for doing all the other examples in computing the areas of rectangular plots. Mere repetition of the same type of situation, such as dominated the old-fashioned drill period, is usually so boring that little gain is made in encouraging retention. The modern teacher seeks constantly to discover learning situations that provide for overlearning in a meaningful setting. Thus the class that is charged with the responsibility of conducting the school bank may get so much practice in the fundamental operations in arithmetic that more formal drill is superfluous. (See DRILL; LEARNING; REVIEW.) B.B.F.

P

PALESTINE, EDUCATION IN. Palestine's unique position as the homeland of two peoples, the Jewish and the Arabic, accounts for its dual system of national education. The Department of Education of Palestine classifies all of the country's schools into these two categories in accordance with the two chief media of instruction, Arabic and Hebrew. Thus the 178 Moslem and the 195 Christian schools, maintained during 1939-40 by religious bodies of both faiths, are included in the Arab system along with the 402 "Arab Public System (Government) Schools." The 320 Jewish schools that are not under the control of the Executive Education Committee of the *Va'ad Leumi* (the Hebrew Nation Committee composed of the Jewish people's representatives), and the 419 Zionist schools comprise the "Hebrew Public System (*Va'ad Leumi*) Schools."

All of the schools, both of the Arab and Jewish systems, operate under the supervision of the Department of Education of Palestine, which inspects schools, distributes grants-in-aid, collects information about education, conducts and supervises examinations, and administers and maintains out of public funds the "Arab Public System (Government) Schools." In the third term of the school year 1939-40, this system consisted of 399 government elementary schools, with 49,722 pupils in elementary classes, 1,744 children in kindergarten classes, and 923 students in 33 secondary classes attached to 14 of the elementary schools. The 178 Moslem schools maintained in 1939-40 reported an enrollment of 14,204 pupils of whom 2,386 were girls. Three of these schools had secondary classes. A number of these schools were comparable with the government elementary schools, but the majority of them, according to the official report of the Palestine Department of Education, were "old-fashioned and inefficient." Of the 195 Christian schools reporting to the government in 1939-40, 119 were Catholic, 34 Protestant, 28 Orthodox, and 14 miscellaneous. The last category includes some

schools operated by the Society of Friends of the United States. The schools enrolled a total of 25,274 pupils, as follows: Catholic 15,700; Protestant 4,919; Orthodox 3,635; Miscellaneous 1,020. Some of the schools controlled by foreign missionaries were closed at the outbreak of the second World War; others, like the Italian, however, were permitted to continue with teachers from friendly nationalities and with lay teachers, if they taught Arab children and their buildings were not occupied for other government purposes.

The schools of the "Hebrew Public System (*Va'ad Leumi*) Schools" fall into three main divisions according to the country's major Zionist parties, the *Mizrachi* or orthodox religious group, the *Histadruth* or labor group, and the general Zionists. Each division enjoys considerable autonomy in the selection of teachers and the course of study, and in internal affairs. It emphasizes in its schools those things it deems most important, for example, the *Mizrachi* schools emphasize traditional Jewish life and studies; the Labor schools stress work as an element in education and labor as a factor in social organization; and the general Zionists, Jewish culture. In 1939-40, the 419 schools in this classification registered 56,900 pupils as follows: general Zionist, 176 schools with 32,279 pupils; *Mizrachi*, 82 schools with 13,860 pupils; Labor, 161 schools with 10,805 pupils. Of these, 195 were kindergarten schools, registering 7,860 pupils; 190 were elementary schools, registering 41,160 pupils; 19 were secondary schools registering 6,142 pupils; 6 were teacher training colleges registering 847 students; and 9 were technical, vocational and agricultural institutions registering 891 students. The other 320 Jewish schools enrolled 25,701 pupils, as follows: under private control—280 schools registering 17,808 pupils; operated by the *Agudath Israel Organization* (extreme orthodox group)—22 schools with a registration of 2,461; operated by the *Alliance Israelite Universelle*

(founded in 1860)—9 schools with an enrollment of 4,413; operated by the *Women's International Zionist Organization*—8 schools registering 616 pupils; and 1 (Evelina de Rothschild Girls' School) operated by the Anglo-Jewish Association (founded in 1871), with an enrollment of 616. In 1931, the Palestine Department of Education reported that about half of the Jewish private schools were the *Chedarim* (literally *rooms*, i.e., one-room schools generally held in the teacher's home), *Talmud Torahs* (Hebrew schools, i.e., where the Torah is taught), and *Yeshivoth* (Talmudical Academies). These emphasize the Jewish or "sacred" studies and except for the Talmud Torah do not offer instruction in the general or "secular" studies (arithmetic, though, is a frequent exception). Also, their medium of instruction is not always Hebrew. In the *Cheder* (singular of *Chedarim*) the medium of instruction may be Yiddish, Arabic, or Ladino, and in the *Talmud Torahs* and *Yeshivoth* it is generally Yiddish.

As already pointed out, the "Arab Public System (Government) Schools" are maintained, and the "Hebrew Public System (*Va'ad Leumi*) Schools" are assisted financially by the government. In 1939-40 the government's net expenditure for these purposes was £P215,076 for Arab education and £P50,793 for Jewish education. Apportionment of these moneys is based on the ratio of school age population (ages 5 to 15). This arrangement satisfies neither the Jews nor the Arabs. The Jews are dissatisfied because the plan takes into consideration neither the Jewish expenses for and achievements in education, nor the total days of attendance for all pupils, a frequently-used basis for the equitable distribution of school funds. The Arabs are displeased because the government's schools do not approximate the Jewish educational standards, and because they (the Arabs) do not control the government's Department of Education. The fact, moreover, that the total expenditure for education amounts only to between five per cent and six per cent of the government's budget, less than in most countries—even in those that finance an army and navy—is an additional cause for discontent among both peoples. The consequence is that education in Palestine is not compulsory and is by no means universal. The extent of education

varies considerably among the various religious communities. Thus in the Jewish and Christian communities almost 100 per cent of the children are believed to receive education of some kind or other, though much of it is of little value and the period of schooling may be short. In the Moslem community the extent of education is less. The approximate percentages of Moslem children who receive some education have been estimated at 80 per cent and 50 per cent for boys and girls respectively in towns, and 50 per cent and 4 per cent for boys and girls respectively in villages (Annual Report 1939-40, p. 2). In September, 1940, 56 per cent of the applications for admissions to government schools in towns and 42 per cent of the applications for admission to government schools in villages were deferred. The average period of elementary schooling in these government schools was about six years in towns and about four to five years in villages. "The majority of children do not proceed beyond the lower elementary cycle, a self-contained unit of five classes in towns and four in villages" (Ibid. p. 4). There exist a few hostels for some of the villages (and their number is small) who attend town schools, "but in general villagers attending town schools are badly lodged under their own arrangement" (Ibid.).

Schooling for the Arabs consists generally of instruction in the common branches and some manual work and/or instruction in the elements of agriculture. A "Government Arab College" and a "Women's Training College" in Jerusalem, and a "Women's Rural Teachers' Training Centre" in Ramaleh, with two-, four-, and three-year courses respectively, are also maintained by the government for the training of teachers for the Arab schools. In 1940 the total registration in these schools was below 150. They are really secondary schools with some work in pedagogy included in the curriculum as an integral part of the vocational instruction provided. The programs of the Jewish, missionary, and private schools, on the other hand, seek to duplicate in content as well as in organization the more advanced European or American educational systems. Accordingly, they do not as a rule, include agricultural or manual work in the elementary classes, which are devoted exclusively to instruction in the fundamental processes, and their secondary schools re-

semble very closely the secondary schools of the lands from which their founders or sponsors came. Thus the increasing immigration of refugees from Germany and Austria brought with it the establishment of a number of private *Gymnasias* and *Realschulen*, while the growing participation and influence of American Jewry in the Zionist Movement and in Palestine have assured a prominent place in the educational system for the eight-year elementary school followed by the four-year secondary school. Like the secondary schools after which they are modeled, these secondary schools primarily provide more advanced general education and aim to prepare the recipients for the "Va'ad Leumi Secondary School Leaving Examination," the government's "Palestine Matriculation Examination," the Hebrew University entrance examination, or the foreign examinations (i.e., London University Examination) administered in Palestine. They do differ, however, from their European and American counterparts in that they frequently include departments of agriculture at the elective level. The government, incidentally, also examines applicants for school certificates, diplomas in higher studies, and Arab teachers' certificates, and conducts language tests for candidates for government employment.

Most of the Palestine-educated teachers for the Jewish schools are trained in four Teachers Institutes, two for men and two for women. One of each is maintained by the *Mizrachi* in Jerusalem, and the other two by the general Zionists—the one for men in *Beth Ha-kerem* and the one for women in *Tel Aviv*. The *Mizrachi* Teachers Institutes offer a five-year course, and the Teachers Institute at *Tel Aviv* a six-year course, based on eight years of elementary school work. Only the two-year course in the Teachers Institute at *Beth Ha-kerem* is based on secondary school graduation. The trend, despite tradition Oriental antagonism thereto, has been toward more women teachers—"in the direction of the American situation," as some Palestinian educators fearfully put it.

Vocational instruction is also provided by the "Government Trade School" which the government maintains at Haifa for Arabs; the "Hebrew Technical Institute," also at Haifa, which offers training in architecture and in civil, mechanical, and electrical engineering to about 500 students; the two

Kadoorie agricultural schools, one for Arabs and the other for Jews, established by and maintained in part from the bequest of a wealthy oriental Jew of that name; and a number of special agricultural institutions.

The government of Palestine provides four scholarships for Arabs in British Universities and colleges, and two are provided by the British Council. In 1925, the Jews opened the Hebrew University in Jerusalem. Originally started as a research institution, which was already at work in some fields, the university assumed also the teaching function with the addition of a Faculty of Humanities in 1928. To date, it has conferred 405 degrees—374 master's and 31 doctor's in the arts and sciences. Its program includes instruction and research in Oriental and Jewish studies, the humanities, education, agriculture, mathematics and physics, the biological studies, archæology, and medicine. The Hebrew University also conducts a program of adult education, which, along with the other many facilities for adult education conducted by the Jews, is responsible for a wide program of adult education in Palestine. Similar facilities for adult education are maintained neither by the Arabs nor by the government, nor have the Arabs taken great advantage of the opportunities offered by the university. The university's student body has in recent years included a number of students from the United States, while 65 students from Palestine were reported to be in American universities and colleges in 1942. J.I.H.

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PANAMA, EDUCATION IN—See CENTRAL AMERICA, EDUCATION IN.

PANEL DISCUSSION. The development of group discussion work in recent years as an educational process has led to the increased use of the panel method. Commonly, a panel, or team of instructors, will sit with a class and contribute to the discussion under the leadership of a chairman. In some instances panels include students as well as teachers, while some consist only of students. Panel discussions may be used in some classes throughout a year or a semester of work, or they may be an occasional arrangement used for special purposes.

The advantage of panel discussion is that a variety of points of view can be expressed by persons who hold divergent positions and who, therefore, can stimulate more vital and lively discussions among teachers and students. Moreover, a greater amount of student participation can thus be elicited, both in the class discussion and in the planning of the work for the group.

Limitations arise when the discussion is not carefully planned by the panel members, and rambles to such an extent that points are not clinched and summaries are not made. Unless the panel works together effectively both before and during the meeting to see that the discussion does not merely raise problems but leads to some profitable end, the students are apt to become bewildered. Panel work is criticized also because it is more expensive in faculty time and energy than the usual class system where many students can be handled by one instructor. When the panel method has been used effectively, however, the method is usually judged valuable and worth the effort. (See DISCUSSION METHOD.)

R.F.B.

PARAGUAY, EDUCATION IN. Paraguay is a centralized republic, one of the two land-locked nations of the Western Hemisphere. The backbone of the population is the *mestizo* who sprang from the early association of the Spanish conquerors with the *Guaraní* Indian women. However, periodical streams of immigrants of Spanish, Italian, German, and Central European origin have

brought in fresh European blood within the last sixty years. Racially the Paraguayans have a high degree of homogeneity and, in general, their appearance is European. The proportion of pure Indians (mostly confined within some far away forests) is negligible, probably no more than 3,000 in all.

The economy of the country is pastoral and agricultural. The most important export commodities are quebracho extract, cotton, packed meat, hides and skins, tobacco, timber, petit-grain oil, oranges, and yerba mate or Paraguayan tea.

The people are bilingual. They speak Spanish and *Guaraní*, the latter being the language of the aborigines who populated the eastern section of the country when the Spanish conquerors arrived in the first half of the sixteenth century. The official language is Spanish, but the *Guaraní* tongue, although not taught in the schools, is used everywhere, but more so in the rural communities than in the towns. Thus Paraguay offers the only example in the American continent of an Indian tongue that has survived its own native race.

Educational beginnings. The real organization of public education in Paraguay started in the middle of the nineteenth century under the administration of President Carlos Antonio López. In 1857 President López reported that there were 408 elementary schools with a total enrollment of 16,755. Under the same administration the first institution of secondary teaching, the *Academia Literaria*, was founded, and the corner stones for a law school were laid.

After the devastating war of the Triple Alliance (a coalition of Argentina, Brazil, and Uruguay against Paraguay, 1865-70), public education was reorganized within obvious limitations, but it has made substantial strides ever since.

Administration and Organization. The Ministry of Justice, Worship, and Public Instruction (*Ministerio de Justicia, Culto e Instrucción Pública*) administers public education. Only agricultural education, administered by the Ministry of Agriculture, and the School of Arts and Crafts (*Escuela de Artes y Oficios*), controlled by the Ministry of War and Navy, fall outside the sphere of influence of the Ministry of Public Instruction.

The body in charge of elementary and

normal education is the National Council of Education, consisting of the General Director of the Schools, who acts as chairman, and four councilors, all appointed by the President of the Republic. This body appoints and organizes the personnel of the elementary schools, draws up programs for the courses of study, regulates the functioning of the schools, and orients the trend of teaching.

Elementary public schools, operating day and night, are of three kinds: lower, intermediate, and upper. The first is rural and the other two are urban. In the normal schools elementary teaching is also carried on. For this reason the normal schools have two departments, one for the normal courses, and one where the teacher-students practice the art of teaching.

Children younger than six years of age attend the kindergartens; those in the cities and towns between seven and fourteen attend the regular day schools; those in the country communities between nine and fourteen attend the lower schools and those of fourteen, most of whom are employed, attend the night schools.

The period of elementary education is six years in the upper schools, five years in the intermediate, and three years in the lower schools. Having completed the six years of education in an upper school, the student may enter secondary school.

Secondary education is provided by the National Colleges (*Colegios Nacionales*), the first of which was founded in 1877 after the War of the Triple Alliance, and served as the basis for the future National University.

A Governing Board of Secondary Education (*Consejo Directivo de Segunda Enseñanza*) supervises and controls teaching in the secondary fields. In addition to the National Colleges, this board has charge of the commercial and professional schools, the latter being administered through special officials called Inspectors.

Curriculum and methods. In elementary education two curricula are provided, one for the rural and another for the urban population. But both are so intertwined that the students from the lower schools can continue their education in the intermediate ones. According to Professor Cardozo, "the trend of teaching is definitely practical; in the rural schools as well as in the urban the

active method is applied." The teaching is based on the ideas of Ferrière, Kerschensteiner (*q.v.*), Dewey (*q.v.*), Washburne, and James (*q.v.*). "Without disregarding intellectual, emotional, and vocational culture, great emphasis is stressed on manual training. In the rural schools the land is tilled, animals are raised, and national raw materials are industrialized." Politically, the trend of teaching is nationalistic and pacifist. No religious teaching is provided in the public schools.

The curriculum of the lower (rural) schools includes the following subjects: reading, writing, arithmetic, language, literary excerpts, practical knowledge, farming knowledge (agriculture, stock-raising, and manual training), singing and music, and physical training. School is held three hours daily.

In the intermediate elementary schools the same program is followed with the addition of geometry, geography, history, physics, chemistry, civic and moral knowledge, natural sciences, and drawing. School is held three hours and fifteen minutes daily.

In the upper elementary schools a complementary course with the same subjects is offered, with the exception of literary excerpts and farming knowledge. Three and one-half hours of study are conducted during the day.

There are 93 private schools, usually providing both primary and secondary education, and the more important are part time or full time boarding schools. These private schools offer in general the official standard curricula, and the courses of study are recognized by the official schools.

Secondary teaching is a regular stage through which all those students aspiring to any of the liberal professions provided by the University must pass. Before entering any University school it is necessary to have the diploma of Bachelor in Sciences and Letters granted by the National Colleges. Secondary education endeavors to give the student a general scientific and literary culture. The period of secondary education lasts six years with a total of thirty hours work per week. The complete curriculum of the six years of work includes the following subjects (in alphabetic order): algebra (two years); anatomy and physiology (one year); arithmetic, practical and analytical, (two

PARAGUAY, EDUCATION IN

years); botany (one year); chemistry (two years); civic instruction (one year); common law (one year); cosmography (one year); drawing, including penmanship (three years); economics (one year); foreign language, elective, either French or English (six years, including one year devoted to the literature of the selected language); geography (four years); geometry (two years); history (six years); hygiene (one year); Latin (four years); Latin and Greek roots (one year); logic (one year); mineralogy and geology (one year); philosophy and ethics (one year); physics (one year); practical ethics (one year); psychology (one year); Spanish (six years, including rhetoric, and history of Spanish and Latin American literature); trigonometry (one year); and zoology and biology (one year). Gymnastics is compulsory every year.

Special schools. In addition to the schools mentioned above, there are others that deserve mention. There are many professional schools for women, privately run but supervised by the State, which give young women professional training in dress making, manual training, home economics, typing, shorthand, mechanical embroidery, and secretarial studies. The *Ateneo Paraguayo* (Paraguayan Atheneum), an institution subsidized by the state, is in charge of artistic education. The subjects offered are music, painting, dancing, singing, interior decorating, foreign languages, and forensics. There is also a normal school of music. The Ministry of War and Navy operates a School of Arts and Crafts which trains students to be carpenters, blacksmiths, plumbers, shoemakers, tailors, mechanics, electricians, etc.

Agricultural education is provided by the *Mariscal Estigarribia National School of Agriculture* and various regional schools of agriculture. The National School aims at the formation of substantial groups of agricultural technicians with adequate scientific and practical preparation to guide national agriculture. The regional schools seek the preparation of farmers of a superior type to the present standard farmer of Paraguay, who is indeed very backward in his technical preparation. The agricultural schools also conduct research work on the different rural problems of the country in general and of individual

regions in particular, with a view toward improving the technical, social, sanitary, and intellectual level of the peasant.

The National University of Asuncion. The law governing the present University organization (enacted 1929) provides that University teaching will aim at "scientific research, professional preparation, and University extension." However, only the second of these three goals (i.e., professional preparation), appears to have real attraction for the students; therefore the University consists of a series of schools for liberal professions rather than anything else. The scarcity of funds also contributes toward this restriction.

The government of the University is in the hands of a Rector and a Superior University Council. Every school (*facultad*) has a Dean assisted by a Directive Council. The Rector is appointed by the President of the Republic from a panel of three candidates submitted by the Superior University Council, whose membership, for this occasion only, is increased by delegates from the student body of each school. The Deans, too, are appointed by the President from another panel submitted by each of the Directive Councils from among its members. The Minister of Public Instruction is an honorary member of the Superior University Council, without a vote. Yet the Minister may have all the power of the different governing officials or bodies of the University in case of intervention decreed by the Executive. The Superior Council consists of the Rector and the Deans of the schools. The Directive Councils of the Schools are formed by five professors and one student each, elected in general assembly of professors and students, respectively.

The National University, as well as the other branches of public education, must struggle against great financial limitations. Paraguay's population is thinner per square mile than that of any other American republic, and its economic productivity is necessarily weak. Under these circumstances what Paraguay is doing for the education of its people may be considered an achievement, though, when compared with the standard education provided by other richer countries, Paraguay's education leaves much to be desired.

Statistics. Educational budget: The na-

tional budget for 1942-43 is the equivalent of \$5,693,050, of which \$666,972, or 8.45%, is assigned to public education, divided as follows: elementary education, 65.63%; secondary education 10.14%; university education, 19.83%; agricultural education, 2.72%; scholarships and subsidies 1.6%.

Illiteracy: According to the latest estimate provided by the Director General of the Schools, the proportion of illiterates in the country does not exceed twenty per cent of the population. Some 40,000 children could not attend school in 1942 for the lack of building accommodations.

Enrollment:

	Students		Teachers	
	Boys	Girls	Men	Women
Elementary schools				
Public	92,948	75,707	414	3,063
Private	4,292	4,016	93	218
	97,240	79,723	507	3,281
Secondary schools	Students		Teachers	
Private	1,004		172	
Public	979		156	
	1,983		328	

The enrollment in the National University at Asunción is as follows: School of Law and Social Sciences, 335; School of Medicine, 365; School of Mathematics and Physical Sciences, 116; School of Dentistry, 168; School of Economics, 150; School of Chemistry and Pharmacy, 148.

(Most of the statistical data for 1942 used in the above survey is not yet available in published form. It was gathered for the writer by Dr. Adolfo V. Latasa in the different governmental branches in Asunción.)

P.M.Y.

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PARENT-TEACHER ASSOCIATIONS—See HOME AND SCHOOL COOPERATION.

PARENTAL EDUCATION. Any form of education whose primary aim is to help parents deal more effectively and more understandingly with their children. In the earlier stages of the parental education movement, parental education consisted almost exclusively in the study by parents of child care and child development. Since 1930, however, an important shift has occurred which is commonly described by saying that parental education has become "parent-centered" as well as "child-centered". This shift has been due partly to the discovery that parents' own emotional difficulties prevent good relationships with their children and often interfere with their own assimilation of information and advice, and partly to the growing recognition that "parents are people" and that it is better for everyone concerned if families are not permitted to revolve exclusively around the children. The need for parents to achieve security in all their relationships and to develop their own personal interests has recently been much emphasized. This means that it is often difficult to determine an exact boundary-line between "parental education" and "education for family life" (See FAMILY LIFE, EDUCATION FOR), or between "parental education" and adult education in general.

Organized education for parents was initiated in the late nineteenth century by mothers who joined together in informal groups to pool their experience and to seek out such guidance as was then available. Out of such informal groups came the Child Study Association of America, and the National Congress of Parents and Teachers (*q.v.*) both of which make important contributions to present-day parent education. Rapid changes in social conditions increased parents' desire for guidance, and professional individuals and agencies in quickly increasing numbers began to supply it. Parental education programs acquired public as well as private financial support; and fathers participated in the movement more and more, though never

PARENTAL SCHOOL

to the same extent as mothers. Today, parental education programs are carried on as a major or minor activity by a wide variety of agencies. These include Federal, state, and local departments of education; home economics, public health, mental hygiene, etc.; university extension and graduate schools; nursery schools; parent-teacher organizations and parents' organizations (See HOME AND SCHOOL COOPERATION); libraries; churches of all denominations; social agencies; and consultation centers. Books and periodical material designed for parents are increasingly numerous. Several centers for research in child development and the training of professional workers in parent education, such as the Iowa Child Welfare Research Station of the University of Iowa, have been established, chiefly since 1920. In 1925, the National Council of Parent Education, comprising agencies professionally engaged in parent education, was organized.

Parental education may be directed to groups or to individuals; most programs make use of both approaches. Group teaching is carried on partly by radio broadcasts and correspondence courses, but largely by lectures and study groups, the latter being increasingly popular because of the opportunity they provide for general participation. Subjects for study vary to some extent with the interests, economic level, and educational background of the groups. Universal problems like "discipline", "sex instruction", etc., are often selected for study discussion; it is also common for study groups to be organized around the problems peculiar to children of a particular age range. Study groups differ widely in several respects: the extent to which the leader dominates the group, the degree to which a plan or outline is adhered to, the use made of assigned and unassigned reading, the child-centered or parent-centered philosophy of the leaders, etc. In 1936, it was estimated that leadership in parent study groups was about evenly divided between professional leaders, engaged in parent education as a career for which they have specifically prepared, and lay leaders, members of the parent group who regard parent education as an avocation and who have received much less intensive training than the professionals. In addition to the fact that it makes possible a much wider extension of parent education

programs than could be carried out by professionals alone, lay leadership is thought to have certain positive values: it may allow more freedom of discussion within the study group than sometimes prevails in the presence of an "expert"; it may develop able leaders within a given community; and it may strengthen the democratic character of the parent education movement.

Individual instruction of parents in the form of sympathetic listening and guidance is provided by persons with many different professional backgrounds; study group leaders (in contacts outside of the group meetings); teachers and school directors, particularly of nursery schools, where directed observation of the children by parents supplements individual conferences; physicians and nurses; ministers; social workers; juvenile court and probation officers; etc. Child guidance clinics (*q.v.*) and family consultation centers (see FAMILY LIFE, EDUCATION FOR) are able to offer parental guidance of a much more thorough and therapeutic nature, through the services of psychiatrists and psychologists. The need for training parent education workers to discriminate between problems which they are equipped to handle and those which they are not is strongly emphasized at present.

B.B.L.

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PARENTAL SCHOOL. The parental school is a type of correctional institution which is an offshoot of the large public school system. The spirit and organization of these institutions are essentially like those of a school rather than of the old-type reformatory. The modern trend is toward individual adjustment with an early return to society rather than permanent institutionalization.

Whether the parental school has a place in a modern school system is a question to which no universally accepted answer can be given. The opponents of the parental school see in

it an unwelcome reminder of the attitude that regards misconduct as an offense to be punished rather than as a symptom of the child's maladjustment, which needs help rather than punishment. The institutional life at a parental school is so different from the child's life at home and in school, that many educators feel that commitment to such an institution does not result in the child's permanent adjustment to normal living conditions. For example, the stigma of such an experience may give him both the feeling and reputation of incorrigibility which, in itself, will make his readjustment more difficult. Although these critics of the parental school realize that some children present so many treatment problems that readjustment can be carried on more effectively if he is removed from his family, they believe that such children should be cared for by whatever agency is best equipped to deal with the particular child. To all these arguments the defenders of the parental school reply that when commitment to an institution is necessary, a step that is taken only after all less drastic procedures have failed, it is better to have the institutionalization under the school's control, and thus be free from any taint of reformatory or penal institution. They point, also, to the fact that a parental school can be operated as an educational and not a penal institution and that it may have both the personnel and the facilities for studying the problems and for effecting the readjustment of the children committed to its care. In general, however, the parental school is not looked upon with favor and seems to be losing rather than gaining in professional esteem. R.V.M.

PARENTS ASSOCIATIONS—See HOME AND SCHOOL COOPERATION.

PARENTS, RIGHTS OF. In the early stages of development of the English common law, from which our American law derives, the general rule was, for all practical purposes, that a father had power of life and death over his children, a rule which prevailed in early Roman law. With the passage of time, this absolute right of the parent to control the child as he would a piece of property has been diminished, if not abolished, and the child has been given certain rights in his own name. In addition, the State as

such has assumed parental responsibility at many points.

It is fundamental law that the State, as *parens patriae* to all children, may deprive the parents of the custody and control of their children if it should be determined that the parents are unfit and unsuitable to have such custody and control. Juvenile courts have been established with the right to interfere with parental control and to change the parental guardianship over children if such parents neglect, abuse, abandon, fail to support, or fail to prevent the delinquency of their children. Child labor laws (*q.v.*) are another form of statutory control exercised by the State in derogation of parental rights to dictate the activities of their children. Compulsory school laws, now existing in all forty-eight states, have been declared constitutional, although they deprive parents of definite rights to control the conduct of their children. Other laws regulating children afflicted with communicable diseases, requiring the licensing of amusement centers, and affording general protection to children likewise assume certain parental authority. Within the school itself, the constitutionality of compulsory vaccination laws has generally been upheld. The parent has no right to demand that his child attend any particular school, the school board being vested with broad discretion to assign students to such schools as in its judgment may be best. This doctrine applies to the practice in some states of requiring a separation of races; this practice has been sustained against constitutional attack, provided only that equality of facilities and opportunity is made available to all.

However, notwithstanding state impingements upon parental authority, the parents as natural guardians of their children have basic control over their activities. As the Supreme Court of the United States once said:

"The child is not the mere creature of the State; those who nurture him and direct his destiny have the right, coupled with the high duty, to recognize and prepare him for additional obligations." (*Pierce v. Society of the Sisters of the Holy Names*, 268 U. S. 510 (1925)).

In terms of the school scene, this right has its most important application in issues where the parent attempts to control the courses or subjects his child shall study in school. Although the issue has not received much judicial attention, it appears that the

State has the right to prescribe specified courses of study. In the absence of such statutory prescriptions, there is a contrariety of judicial views where a parent objects to his child being required to study any given school subject. It is probably the weight of authority that the parent may make a reasonable selection of studies for the child to pursue, provided always of course that school discipline is not adversely affected. Thus courts have declared improper the actions of school authorities in expelling students for refusing to study grammar or social dancing where parents object to such studies. On the other hand, some state courts have upheld schools in expelling students for refusal to study music, declamation, rhetoric, or composition. Needless to say, even where a state does allow reasonable parental choice as to subject matter, nowhere does the parent have the right to dictate the mode of instruction.

The Supreme Court of the United States has had occasion to address itself to the problem of parental rights in the school. In the famous *Pierce Case*, cited above, the Court declared unconstitutional as unduly infringing upon parental rights an Oregon statute forbidding attendance in parochial schools by requiring all pupils to attend public schools. The parent, said the Court, could be required to send his child to school, but could not be required to send him to a public school; the choice was his. Two other cases before the Supreme Court involved attempts by states to forbid, rather than require, certain courses; in both, the Court declared the laws unconstitutional as improper infringements upon parental rights in the education of children. In *Meyers v. Nebraska*, 262 U.S. 390 (1923), Nebraska attempted to restrict and forbid the teaching of the German language during the First World War, and the Court forbade the enforcement of the act as an unconstitutional restriction of the rights of parents and teachers. In *Farrington v. Tokushige*, 273 U.S. 284 (1927), the Court invalidated a Hawaiian statute which attempted to impose extensive regulatory provisions on foreign-language schools, principally Japanese schools. In declaring the act unconstitutional, the Court said that although it was aware of the grave problems which motivated the statute

"Enforcement of the Act . . . would deprive parents of fair opportunity to procure for their children instruction which they think important and we cannot say is harmful. The Japanese parent has the right to direct the education of his own child without unreasonable restrictions; the Constitution protects him as well as those who speak another tongue."

H.N.R.

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PARKER, FRANCIS WAYLAND (1837-1902). Colonel Parker has earned a secure place in the history of education, especially of elementary education, in the United States. One of his most significant works furnished a nexus by which Americans came better to know Pestalozzi, Herbart, and Froebel (*qq.v.*); another established him as one of the chief interpreters of improved educational theory and practice of the period between about 1875 and the opening of the twentieth century. The posts by means of which he was able to accomplish this large measure of achievement were his superintendency of the schools of Quincy, Massachusetts (1875-1880), and his principalship of the Cook County, Illinois, Normal School (1883-1889). These administrative posts gave Parker's theory a chance to test itself in the hot crucible of actual school practice.

As Interpreter of European Educational Theory. Parker was an important link in the catenation of leaders by which Pestalozzi's salutary influence on elementary school geography was developed and made effective. This influence—through Ritter in Germany, Guyot, the Swiss, at Princeton University. Parker and his students (notably Frye)—was a definitive and permanent contribution to the elementary school curriculum. By it, geography was transformed from an encyclopedic subject to a "study of the earth as the home of man". It had been an exercise in mechanical memory of terms and of unassociated factual fragments. Through this movement, of which Parker was an important part, it became a thought-provoking study of the cause-and-effect relations between physiographic conditions on the one hand and human activities and social life on the other. Ritter and Guyot developed the new science; Parker and his disciples adapted it to elemen-

tary school purposes, stressing home geography as the point of departure for the young child.

Of the doctrines of Herbart (*q.v.*) and his European followers, it was the doctrine of concentration which appeared to be basic to Parker. Herbart's immediate followers in Germany, especially Ziller and Rein, had tried to develop curricula in which all activities were related to history and literature as the core of concentration. Parker placed geography at the core. To him, concentration was not just a structural curriculum device; it was a basic principle for unifying the experiences of a growing child. "The doctrine of concentration," he wrote, "is itself a science of education that will absorb the attention of thoughtful teachers for centuries." The perennial out-cropping of this concept suggests real prescience in Parker's judgment. Whether labeled as the project curriculum, or as unit teaching, or as integration, or otherwise, there is something basic in this concentration concept—if survival value is a measure of basic quality.

Of the Froebelian doctrines, those of unity, motor expression, and social participation were tirelessly preached and applied by Parker. He acknowledged Froebel's (*q.v.*) concept of unity as a source of inspiration in his educational thinking, and cited it as partial support for a concentrated curriculum. Froebel's stress on motor expression as an aid to growth was focal in Parker's training of teachers at the Cook County Normal School. Motor expression was justified chiefly on the grounds that expression helps thought and thought is necessary for expression. The effort to draw a map impels to more accurate thinking on what a map represents. It was a distinctive contribution of Parker that he saw the implications of these Froebelian theories for the growth of children of elementary school age; he urged that they be projected upward from the kindergarten, where they had first been instituted.

Improved Methods. Parker, by means of the journal issued by him and his Cook County Normal School colleagues and by means of the enthusiastic teachers who spread his vitalizing influence, has had an enduring effect on elementary school methodology. Examples of this phase of his work survive especially in the fields of geography and

reading. He attacked the early and exclusive devotion to oral reading and pleaded for silent reading, which he conceived to be psychologically a very different process. One was a form of expression, the other a form of thought-getting. Present-day reading methods have had persistently to reiterate this truth. (See **READING, METHODS OF TEACHING**).

Parker had to meet some of the opposition, both at Quincy and in Illinois, familiar to contemporary advocates of the "new education". His new geography was ridiculed as setting up "mud-pie factories"; he was accused of "neglecting the 3 R's." In spite of this, he persevered, and any complete history of progressive education (*q.v.*) must accord his work an honored place. **P.R.V.C. References.**

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PAROCHIAL SCHOOLS—See **CATHOLIC EDUCATION**; **CATHOLIC PAROCHIAL SCHOOL**; **JEWISH EDUCATION**; **PROTESTANT EDUCATION**; **RELIGION AND PUBLIC EDUCATION**.

PART VS. WHOLE LEARNING—See **LEARNING**.

PART-TIME DIVERSIFIED OCCUPATION PLAN—See **COOPERATIVE PART-TIME DIVERSIFIED OCCUPATION PLAN**.

PARTIAL CORRELATION—See **CORRELATION (STATISTICS)**.

PAUPER SCHOOL — See **POOR-LAW SCHOOL**.

PAY-AS-YOU-GO PLAN—See **FINANCE, SCHOOL**.

PENMANSHIP, TEACHING OF—See **HANDWRITING, TEACHING OF**.

PENSIONS, TEACHERS'—See **TEACHERS' RETIREMENT**.

PERCENTILE. Percentiles are points on the base line of a frequency distribution which divide the number of cases into one hundred equal parts. Since neither scores nor ranks have any absolute significance, a

PERCENTILE CURVE — PERCEPTION

given score may be high or low depending upon the difficulty of the test, the number of questions included, and the scoring weights assigned; while a given rank may be high or low, depending upon the size of the group. The conversion of scores and ranks into relative units, such as percentiles, makes their interpretation more meaningful.

Percentiles are not frequencies nor are they per cents of test questions answered accurately. They are per cents of a group falling below designated scores or values. A *percentile rank* means the rank of a given score among 100, as though 100 individuals had been tested and ranked. For example, if 75 per cent of a group have test scores not greater than 62, then a score of 62 corresponds to the 75th percentile, and a pupil who has earned a score of 62 has a *percentile rank* or *percentile score* of 75.

As a frequency distribution may be divided into a hundred parts, so may it be divided into any other convenient number of parts. The most commonly used divisors yield *deciles*, *quartiles*, and *quintiles*.

Deciles are the percentiles which divide the number of cases into ten equal parts. The first decile is that point below which fall ten per cent of the scores. Each successive decile includes an additional ten per cent. For example, the sixth decile is that point below which fall sixty per cent of the measures.

Quartiles are the percentiles which divide the number of cases into four equal parts. The lower quartile (25th percentile) is the percentile below which lie twenty-five per cent of the measures and above which lie the remaining seventy-five per cent; the second quartile (50th percentile) is the median; the third quartile (75th percentile) is the percentile below which lie seventy-five per cent of the measures and above which lie the other twenty-five per cent.

Quintiles are the percentiles which divide the number of cases into five equal parts. The first quintile is that point below which fall twenty per cent of the measures. Each successive quintile includes an additional twenty per cent. For example, the third quintile is that point below which fall sixty per cent of the measures.

Where scores are available for a large and presumably representative sampling of a specified population, *percentile norms*, which in-

dicate the percentiles to which given scores correspond, furnish a useful basis for comparing and evaluating the status of similar individuals and groups. From the *percentile scale*, which furnishes the percentile equivalent for each score, it is a relatively simple matter to find the percentile rank of any given score. The percentile scale may be graphically represented in the form of an ogive. The *percentile curve*, or *percentile graph* is an ogive on which the frequencies are expressed as per cents of the total number of cases. The ogive is an S-shaped cumulative frequency curve which readily yields information as to the number of cases or per cent of a group lying below any designated value. It shows the sums of the frequencies of all measures (expressed as a per cent of the entire group) lying below designated amounts of the trait and serves as a graphic method of finding the median, quartile deviation, and percentile ranks of test scores.

Percentile units are not of equal length throughout the scale, nor are they as reliable for extremes as for average scores. However, by allowing for the conversion of scores on different tests or in different traits into common units, they furnish a convenient method of equating scores. (See GRAPHIC METHODS: NORMS.)

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PERCENTILE CURVE—See GRAPHIC METHODS; PERCENTILE.

PERCENTILE GRAPH—See GRAPHIC METHODS; PERCENTILE.

PERCENTILE NORMS—See NORMS: PERCENTILE.

PERCEPTION. The process of *perception* has been analyzed differently by various philosophers and psychologists, depending mainly upon the metaphysical and epistemological assumptions they hold. Without attempting to define perception according to any one of these schools of thought, we can term it an awareness, by means of sensory experience, of objects, qualities, and relations. Perception, particularly after the first few years of life, is not a mere recording of sensations. A child who is startled by a sound or flash of light cannot be said to perceive

PERCEPTION

in the same sense as he does later when he learns through experience to recognize the startling sound as a fire-gong, or the flash as lightning. It is extremely difficult to separate perception from inference making. We perceive things in terms of what they suggest rather than in terms of face appearance. It is for this reason that witnesses find it so difficult to describe "exactly what they saw" and that children are told they "imagined" things when they are sure they saw them. The fact that perceptions and inferences are interrelated and that what is actually perceived, as well as how it is perceived, is partly a function of one's interests, attitudes, and emotions has led to such personality-testing devices as Murray's *Thematic Apperception Test*, which presents pictures to the subject for his description—pictures depicting scenes that can be interpreted in various ways.

Perceptions are also affected by the context in which the perceived items appear. Lines of similar size but with different types of lines added to them at the ends appear to be of different sizes, a light flashed on in quick succession appears to be a moving light, the moon seems to move quickly through the clouds when in reality it is the clouds that are speeding in front of the moon, etc. The child's conception of the world, so well described by Piaget (*q.v.*), is full of errors derived from perceptual difficulties.

Throughout his philosophy, Dewey stresses the need for the validation of perception if knowledge is to result. Kohler and Koffka hold that we behave according to our percepts and not according to the world as it actually is. In distinguishing between the behavioral and geographic environments, they emphasize that the former comes to correspond with the latter (that is, our percepts come to correspond with reality) as we act and experience the effects produced, effects that are dependent upon the geographic environment. This is largely in agreement with Dewey who has built his whole theory of education on its relationship to experience. Dewey, however, is careful to point out that experience by itself will not necessarily correct false perceptions. Reflective thinking involving principles of logic must be applied.

It is seen that observational techniques so commonly used in child study may suffer from the wrong interpretation which is inte-

grated with the observation. Thus, agreement among trained observers watching the same child at the same time is frequently low. The attempt has been made to get observers to record in categories which would more nearly approach the "exactly what was seen" criterion. There is more agreement in such recording, but the data prove to be barren for any practical use.

Whether we perceive small units which we then add up or integrate into wholes, or whether we first perceive wholes the details of which we only later differentiate has been the subject of much controversy since the Gestalt psychologists elaborated the latter view. Actually, the problem is not completely an "either-or" one. The wholes of the universe are not always presented to us in the way that the whole chair may be in our view. Moreover, things are parts in one relationship, and wholes when considered from another point of view. Is it the letter, or the syllable, or the word, or the sentence, or the paragraph, which forms the whole and should be taken as the unit for beginning the teaching of reading? Only experiments can determine the answer. Experiments have shown that words can be perceived and recognized before there is any knowledge of the separate letters, and that for a majority of young children greater success is gained when reading starts with words, phrases, or short sentences. On the other hand, young children have been found not to be able to perceive the "whole" or "theme" of a picture. They name the separate objects which they see, without perceiving the relationships between them. Experiments with the Rorschach tests have demonstrated that the mentally retarded also give more "detail" than "whole" responses. One can thus say that perception begins with an object of a size depending upon the nature of the object and the perceiver and the perceiver's purpose, and that, as perception continues, details of the object may be differentiated while at the same time the object is integrated with others to form a new whole or pattern.

B.B.F.

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PERIOD—See CLASS PERIOD.

PERIODICALS, SCHOOL USE OF—
See NEWSPAPERS AND PERIODICALS, SCHOOL
USE OF.

PERPETUAL INVENTORY—See IN-
VENTORY.

PERSONALISTIC PSYCHOLOGY —
See PSYCHOLOGY, SCHOOLS OF.

PERSONALITY. The development of personality has come into prominence in recent years as an important objective in education, an objective which centers its interest on the child as an individual—on the whole child. This newer departure contrasts with earlier ones aimed at the development of specific habits, skills, and attitudes. With the lessening influence of the family and the growing complexity of civilization, there is a demand that formal education be interested in the child's total adjustment as well as the mastery of certain isolated elements of learning.

Personality as a term suffers from vagueness and from having a number of different meanings. Allport¹ presents 500 definitions of personality. Certainly education is only to a mild degree interested in the development of personality in the sense of social reputation or superficial charm—the meaning of personality which is associated with Hollywood. Allport's own definition of personality is "The dynamic organization within the individual of those psychological systems that determine his unique adjustment to his environment." This definition includes a number of distinct concepts. In the first place, personality is thought of as pertaining to the *organization* of traits rather than the disparate accumulation of separate traits. Personality refers to the *uniqueness* of an individual—that which distinguishes him from another and gives him his distinct character. Personality also refers to the *adjustments* which an individual makes to his environment. Of these adjustments, his social adjustments are by far the most important. Reference is sometimes made to *personality adjustments*, which refers to an individual's emotional stability and the integration of his purposes around socially valuable goals. Adjustment in this sense does not refer exclusively to passive adaptation, but also to the

active processes of manipulation and mastery of the environment to gain one's ends. Personality adjustment has two foci of meaning. First, it refers to an individual's happiness and well-being, his sense of security and a general feeling of worthiness and adequacy. Second, it refers to an individual's ability to make himself acceptable in the various social groups of which he is a member.

Personality and *character* are two terms which are commonly bracketed together in discussions of educational objectives, and are often contrasted with each other. Allport speaks of character as personality evaluated, while personality is character devaluated. Character refers to the goodness or value of personality. In a more limited sense, it refers to the extent to which an individual is socialized in his conduct and attitudes. One commonly speaks of an individual as having a good character who has the qualifications of a good citizen. Personality, on the other hand, refers to the characteristics of an individual without attempting to pass judgment upon them or to indicate to what degree the individual's traits are socially acceptable and desirable. Sometimes personality is used to refer to all aspects of an individual, which would include his physique, the appearance that he presents to others, his intelligence, and his stock of interests, attitudes, appreciations, and ideals. May³ has defined personality as a man's social stimulus value; i. e., "the responses made by others to the individual as a stimulus."

The degree to which personality is influenced by heredity and by life experiences has not been finally determined. There is evidence which would indicate that some aspects of personality are to some degree inherited. However, identical twins living apart do not show a closer correspondence on personality questionnaires than do non-identical twins, siblings, or unrelated children who have had the same experience in living in different families. There are some who see the personality determined by various somatic and morphological factors—as, for instance, through glandular influences or through the influences of body dimensions. By far the most promising hypothesis today is that personality to a large measure is determined by experience, particularly experience in the first days, weeks, and months of an infant's life.

Studies of child development and clinical studies in child guidance have demonstrated the mechanisms of learning in infancy which would help to account for the variations in personality of children and adults in later years. Of special importance are the experiences in the family, and, in particular, the attitudes and relations of parent and child. Evidence is piling up to indicate that a considerable number of the distinct characteristics of personality are determined by the nature of the relationships between a child and its parents. For instance, accepted children develop well socialized and stable personalities, whereas children rejected by their parents develop aggressive and non-cooperative tendencies, show unstable qualities, and have tendencies toward delinquency.⁵

Modern psychology, in contrast to popular misconceptions, is impressed with the stability of personality. The average man thinks of personality as something like a suit which can be changed daily. It is commonly believed that one can adopt attitudes to fit the occasion, and that an individual can shift readily from being aggressive to being submissive, and from being buoyant and optimistic to being pessimistic. Intensive studies of individuals point, however, to the persistence of personality traits over the whole of the life span. The methods by which an individual meets situations today will closely resemble the methods which he used yesterday, last week, a year ago, or even twenty years ago. The persistence of personality traits is unmistakable. In understanding an individual in order to help him, one can assume the existence of a natural history of personality growth and development. The personality that one brings to a present situation is the final product of innumerable early experiences to each of which he has reacted, and which have helped to form the course of his present adjustments.

Considerable attention has been given in recent years to methods of studying a personality. At first, there was considerable hope that psychometric methods which have been so successfully used in the measurement of intelligence, aptitude, and achievement, could be adapted to the study of personality. In general, however, the results of these attempts have been disappointing. This is due partly to the fact that in giving an individual a

paper and pencil questionnaire, one has to depend upon his willingness to cooperate and answer the questions truthfully. One has to depend also upon an individual's ability to view himself objectively, and to put aside the temptation to throw a favorable light on his feelings and attitudes. Today, experimentation is going on with less direct attempts to measure or describe personality. Projective methods, by which an individual is lead to reveal his underlying phantasies, wishes, and attitudes by responses to incomplete or undifferentiated stimuli, are being developed. Among these the Rorschach technique (*q.v.*)—a series of ten symmetrical ink blots—is being widely used and is yielding promising results. Perhaps more basic to these projective methods are the clinical methods of personality measurement through direct observation and the use of interview techniques. With younger children considerable use is made of the child's reaction in a play situation, which combines observation with the principles underlying the use of projective methods.

Education is interested in the possibility of modifying personality. Just as personality itself is believed in large measure to be a product of early experiences, so it is believed that personality can be extensively modified by the wise selection of new experiences. However, it should be recognized that personality is not easily modified, but, as was said earlier, has considerable stability growing out of the adjustments that have been made to a myriad of earlier life experiences. Education needs perspective with regard to the timetable of personality change. Modification of personality must be thought of in terms of months and years, rather than weeks and days. A child, even when placed in the most constructive environment, will change its personality only gradually. Educators should recognize that personality can be modified only to the degree that the child's experiences are modified. This usually means that if the personality is to be improved, there must be a somewhat radical change in the child's conditions of living, which usually means a change in home or school, a summer spent at camp, a change in curriculum or teacher. The most important factor in the modification of personality may be found in the personal and social relationships of the child. Personality is changed more through changing

parents, teachers, counselors, and playmates, than through changing clothing, sleeping arrangements, food, or books. Even though personality in its more important phases can be changed only slowly, and in moderate degree, the development of personality still remains as one of the most important aims of education. (See CHARACTER EDUCATION.)

P.M.S.

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PERSONALITY TESTS—See CHARACTER AND PERSONALITY TESTS.

PERSONNEL WORK, STUDENT — See GUIDANCE.

PERU, EDUCATION IN. Peru is a country double the size of pre-war Germany, but with a population of only about 7,000,000. About 10 per cent are of Spanish blood, 60 per cent are Indians and the remainder are *mestizo*. Due to the unfavorable climate of the high Andes these last two groups are physically underdeveloped. Except for the guano, all the riches in minerals, oils, agricultural products and also the transportation system and banking are predominantly in foreign hands. Most of the inhabitants are employed in agriculture, but two thirds of the cultivated land belongs to the church and the *Latifundistas* (wealthy landowners). The costly war of the Pacific against Chile and the continuous strife among conservative cliques hampered Peru's development during the 19th century. These inner struggles had not abated to the end of the Benavides government in 1939. But a liberal, American and pro-Indian movement, the *Aprismo* under the leadership of Haya de la Torre, arose since 1923 against the ruling conservatism. It united the majority of the population and

seemed to sweep Haya into the Presidency in 1931, when he was arrested and his party suppressed. The government of Manuel Prado (1942) cautiously veered in the direction of democratization.

Under these circumstances the cultural level of the country as a whole is rather low. Nine-tenths of the Indians are illiterate. Many still speak only their native language, *Quechua*. Their old culture which culminated in an elaborate school system for boys and girls of the Inca aristocracy was wiped out by the conquest. It introduced the scholastic medieval system which centered around the oldest American University of San Marcos in Lima (1551), in which the new free spirit of the Renaissance was not admitted. The Republic, under the Liberator San Martin, seemed to open a new era under the influence of French revolutionary ideas. In 1922 he invited to Peru the Scotchman, Don Diego Thompson, who had introduced the Lancastrian system in Argentina and Chile. He did the same in Peru and founded a normal school. In spite of many school laws and reform projects in the 19th century and of the work of the American Bard Commission of 1920, the political situation has prevented a basic change. But there is hope that the awakening of the national spirit and the understanding attitude of the government will definitely improve the educational situation. The Education Act of 1941 is promising. The problem of how to relieve the Indian from his bondage by an education based on his particular needs is clearly stated and better financial provisions for that education have been made. But it is also clear that the progress of education will finally depend on the progress of agrarian reform and industrialization. The state of education in 1942 was about the following: The administration is centralized in the Ministry of Education and its departments. But political and enormous geographical difficulties restrict its efficiency. Nearly 10 per cent of the population—against 17 per cent in U. S. A.—attend elementary schools, which are compulsory by law (where they exist) for all the children from 7 to 14 for a course of 6 years. But nothing is certain about the number of days the schools are open, or the average attendance of the pupils. Three per cent of the elementary school population continue in the forty-eight secondary schools and normal schools.

Most of them are directly or indirectly church controlled. The secondary schools have two cycles of three years each. The first is general, the second has some rigid courses of either a utilitarian or an academic character (science or letters). The academic courses prepare for the University Entrance examination. Elementary teachers attend a secondary school for four years and go to the normal school for another three years. But in 1942 no more than 20 per cent of the teachers in service held certificates of a normal school. Secondary teachers complete the secondary school and need four more years of scientific and educational training in two special institutes or in the university. But few of the secondary teachers have graduated from these institutions. Among the 5 universities—one is private, the Catholic Univ. of Lima—and the different higher technical institutions, the university of San Marco in Lima holds a special rank. It has both medieval (philosophy, theology, etc.) and modern faculties (science, economics and politics). Its development too has suffered from the political unrest of the country. It was closed by the government from 1932-1935, when the movement for democratization of the Latin American Universities which had started at the University of Cordoba in Argentina in the twenties spread to San Marco. It has attained a certain degree of autonomy with respect to curricula and financial administration. That is a hopeful sign that a new era is finally coming. F.K.

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PESTALOZZI, JOHANN HEINRICH (1746-1827.) Pestalozzi was born in Zurich, Switzerland, and received a careful rearing in a good home environment. His mother, although left a widow when he was only five years old, was able to send him through the Latin school and to the University of Zurich. As a youth he became greatly interested in the conditions of the poor Swiss peasants. Influenced by his grandfather, a pastor in a near-by town, he studied for the ministry,

but soon considered himself a failure in that career. He then studied law to prepare himself as a champion of the down-trodden masses. His revolutionary ideas brought him into conflict with the government, and his usefulness as a lawyer was at an end.

In 1769, he bought a farm, which he called "Neuhof." Here he launched an experiment to improve the conditions of the Swiss farmers through education. He had read *Emile* and had tried to bring up his young son according to Rousseau's principles of naturalism. The experience convinced him that these principles needed some modifications in practice; he therefore took into his home a group of ragged, vagrant children and attempted to give them instruction in the rudiments and in religion and morals, while they supported themselves by industrial work under the influence of a good home environment. The experiment was an educational success but a financial failure and had to be abandoned when the reformer became bankrupt.

In 1781, Pestalozzi wrote his great didactic novel, *Leonard and Gertrude*, a book that ranks among the educational classics. Much later he published a sequel, *How Gertrude Teaches Her Children*. In these books he expounded his educational ideals and described the methods by which they were to be realized.

In 1798, Pestalozzi was given the opportunity to turn from the pleasant task of theorizing about education to the more thrilling and difficult task of practising it. The government asked him to establish a school in an old convent at Stanz and entrusted him with the task of educating about eighty children orphaned by a war massacre. Here he began his experiments in educational method which were later continued at Burgdorf, where he first acted as assistant to the head teacher in the village school and later established himself in a school of his own. With several loyal and efficient assistants he continued his experimentation, and was able with the aid of voluntary contributions and government subsidies to open an institute for the training of teachers in his new methods. In 1805, the institute was moved to Yverdon, where for twenty years he continued his experimentation and the teacher-training work begun at Burgdorf. As the fame of the institute at Yverdon spread, students and

visitors were attracted from other countries, and the Pestalozzian philosophy and methods were carried to other nations, particularly Germany, France, England, and the United States.

Pestalozzi's object teaching was the beginning of an important and influential movement in modern education. The chief characteristic of the movement is the belief that education is a control of the development of the child from within instead of an imposition of adult standards from without. It is primarily concerned with the psychological control of the development of the child.

Pestalozzian Aims. Pestalozzi's ultimate goal was the social regeneration of humanity. He said that his sole aim was to stop the sources of the misery in which he saw the people around him. "I lived like a beggar," he writes, "in order to learn how to make beggars live like men." He desired to ameliorate the desperate conditions under which humanity existed, but instead of depending upon new forms of religion, new types of government, or new systems of economic organization, he turned to education for his solution of this age-old problem. He believed that the only way to change society for the better was through changing the individuals that make up society.

Pestalozzi believed that the genuine reform of society must begin with the elevation of the individual, and that the individual can be elevated only by putting into his grasp the power of helping himself. The only sure means of attaining the end sought is through the process of development. Although his aim is to secure a happier and more virtuous life for every individual, the process by which he hoped to bring about this desired end was "the natural, progressive, and harmonious development of all the powers and faculties of the human being." These powers lie dormant and latent in every child, merely awaiting an opportunity to unfold; education must furnish the opportunities for their unfolding. Pestalozzi likes to compare the education of the child with the development and growth of a plant. He writes, "Man, formed from the dust of the earth, grows and ripens like a plant rooted in the soil." Pestalozzi's main purpose was to discover the natural laws underlying the development of the head, heart, and hand of the child. Education is to provide the conditions under which this

development can take place naturally and harmoniously.

These ideas of Pestalozzi mark a striking change in aim. In the schools of his day, teaching meant the giving of information. To Pestalozzi it meant the development of the child in accordance with his inborn faculties.

Pestalozzian Curriculum. In general terms, Pestalozzi believed that the essential elements of an elementary education were language, number, and form; all the materials of instruction could be brought under this three-fold classification. In practice, however, the Pestalozzians retained the traditional names of the various subjects in the elementary curriculum. Some of the subjects were changed for the better and some were not, but all came under their influence to a greater or lesser extent.

As a result of the Pestalozzian emphasis upon oral object teaching, certain subjects (arithmetic, geography, elementary science, and language) were emphasized much more than others, and were greatly improved in character. As a result of the extreme application of his principle of proceeding from the simple to the complex, other subjects (drawing, music, reading, and writing) did not fare so well.

In connection with the teaching of "object lessons," Pestalozzi and his followers naturally made use of many materials used later in the teaching of the natural sciences. However, they usually designated such instruction by the term "object teaching," the phrase "elementary science" coming into use later, and the phrase "nature-study" still more recently. The object teaching was at first of a rather informal nature, the teacher making use of the common objects in the children's environment in order to enlarge the scope of their impressions and provide the basis for language expression. Later, however, this objective teaching became more scientific and highly systematized. Collections of physical, chemical, mineralogical, botanical, and zoological specimens were made available for observation by the children, who were required to learn to describe them in scientific terms. Still later, especially among the English and American Pestalozzians, these lessons in elementary science were looked upon as essential preparation for the advanced study of natural science and history in the secondary schools.

No subject in the curriculum was more completely changed by the Pestalozzian influence than geography. Before the time of Pestalozzi, geographies were mere compendia of facts, arranged in a logical encyclopedic manner. Even after the development of Pestalozzianism, this dictionary-encyclopedic type of geography continued to be taught in most localities, and it is not uncommon to find traces of it in our geographies to this day. This fact-geography involved the memorizing of all kinds of astronomical, physical, natural, and political data, usually presented in a catechetical, or question-and-answer, form. The pupils learned definitions, statistics, boundaries, capitals, products, exports and imports, populations, etc., and the teacher listened to the pupils recite these memorized facts. The application of oral object teaching to geography changed all this. A new study of home geography was introduced, based on the principle of proceeding from the simple and known to the complex and unknown.

The third subject that was greatly improved as the result of Pestalozzian theory was arithmetic. Before Pestalozzi, arithmetic involved "figuring" on paper, and was commonly known as "ciphering." Rules were memorized and "examples" worked according to these fixed rules. Pestalozzi replaced such processes with rapid mental calculations in connection with the counting and measuring of objects. He tried to develop real number ideas instead of meaningless words about numbers. These number ideas were gained by counting, measuring, grouping, and arranging concrete objects, lines, etc. This type of arithmetic was popular down to the end of the nineteenth century.

Pestalozzi made oral language one of the outstanding features of his curriculum. He was the first to introduce the oral language lessons which have become such a prominent phase of our modern elementary course of study. The children were encouraged to tell what they had experienced after they had been filled with sense impressions through their observation of objects. Thus language came to be a free oral description based on sensory experience rather than a reproduction of words read in a printed text, and correct-speech usage came to be stressed instead of the formal rules of grammar.

Writing, drawing, and music should have

been developed by Pestalozzi along with oral language as agencies for free expression. He did include these subjects in his course of study, but unfortunately they were influenced unfavorably by his principle of procedure from the simple to the complex. Because of his attempts to reduce each of these subjects to its elements and to present it logically, they were taught in a mechanical, lifeless, and ineffective manner. Children were started on learning to write by means of drills on lines, curves, and muscular movements. In drawing, years were spent on angles, geometric figures, and forms. In music, children were drilled on notes, scales, and tones. Long before the children came to the real writing of ideas, the real painting of pictures, the real singing of songs, they were thoroughly tired of these subjects. It is only in recent years that our modern educational psychologists have taught us that what is simple to the adult is not necessarily simple to the child, and that what is logical to the finished scholar is not necessarily logical to the child and therefore not psychological in its arrangement.

Pestalozzi, in so far as he taught reading, was satisfied to continue teaching it in the traditional manner, beginning with drills on the alphabet, and then proceeding through drills on syllables and words to phrases and sentences. Today we realize, as a result of the work of later educational psychologists, that the phrase or sentence is the simplest element to the child, and we begin the teaching of reading with these elements. Even arithmetic came under the influence of this mistaken principle at the hands of later Pestalozzians.

Pestalozzian Methods. Pestalozzi based all his method upon the principle of pupil activity. There were two steps in his procedure, impression and expression, and both of these must be carried on by the child himself. Pestalozzi said, "Sense impression of nature is the only foundation of human instruction, because it is the only true foundation of human knowledge." He believed firmly that observation must be the basis of all instruction. For this reason his instruction of children, especially in the early stages, consisted largely of having them observe, count, analyze, and name objects. He made use of the object-lesson, where learning comes through sense experience rather than through words. He insisted on oral teaching of all

subjects. The child was not to learn from a book; the teacher was not to hear the child recite from a book. The child's expression activities must come from the impressions gained from the observation of actual objects. Language expression, both oral and written, must grow out of the observation of objects presented to the various senses of the child. So it was with drawing. Geographical expression consisted of such activities as the modeling of land forms perceived on field trips. Arithmetical expression consisted of counting the windows in the room, of measuring the distance across the room, and of similar exercises in counting and measuring. Moral expression grew out of the incidents which arose in the daily lives of the children.

Pestalozzi abandoned the older deductive methods, whereby teaching began with rules and abstractions, for the inductive methods, whereby children began with simple elements of experience which they combined into larger meaningful wholes. He recognized the principle that learning must proceed from the known to the unknown, which to him meant from the simple to the complex. He bitterly criticized the then prevalent method of "teaching the unknown by means of the incomprehensible." He reduced all subjects to their simplest unanalyzable elements (their *A B C's*), and then taught these subjects by carefully graded steps. Nothing was to be learned which was not readily understood and easily mastered. The application of this principle to the teaching of reading, drawing, and music has not been very effective, but its effect upon the teaching of arithmetic, language, geography, and elementary science has been most praiseworthy.

The principle that formed the core of the Pestalozzian method was that of proceeding from the concrete to the abstract, from the particular to the general. He protested vehemently against teaching generalized ideas to the child in the form of meaningless words, and insisted that the child must express his own ideas as the result of the impressions gained from concrete observation and experiences. Pestalozzi's great contributions to the new educational methods were: (1) the study of real objects, (2) learning through the various senses, (3) individual expression of ideas. One of his limitations was that his efforts were spent largely in the perfecting of the elementary steps of instruction. The

second was that he knew nothing about the psychological control of mental organization, of what went on in between impression and expression. It was along these lines that his disciple, Herbart (*q.v.*), was to make his great contributions.

Pestalozzi was opposed to the harsh, brutal discipline which for ages had characterized the schools, and tried to substitute for it a discipline of sympathy and love. He wanted to reproduce as far as possible the atmosphere of a good Christian home, gentle and refined. When a father visited his school and said, "Why, this is not a school, but a family," Pestalozzi was very much pleased. His discipline of "thinking love" was a natural outgrowth of his conception of education as the development of the child rather than the pressing of the child into molds of adult behavior. E.H.W.

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PHENOMENALISM. Phenomenalism is the point of view that people know things in the outer world not as they really are but as they are experienced or appear to be. The phenomenalist believes that there are two worlds: the world of things as they actually exist and the world as it is conceived in the mind of the observer. Only this latter world of mental creation can be known. For instance, a red color is not considered to be an inherent quality of an object but what it is perceived to be. W.A.S.

PHILANTHROPY, EDUCATIONAL.

Educational philanthropy refers to the private giving of money for the direct support of public or private schools or for building up endowments for such institutions. Non-public schools derive a relatively large proportion of their incomes from gifts and subscriptions and from the income derived from endowments built up by private subscriptions. Private gifts and grants comprise a relatively

small proportion of the income of public educational institutions.

Private support of education dates from early colonial times when schools of all grades were controlled by the church and supported almost entirely by private subscriptions. The growth of publicly controlled schools and the greatly increased public support in recent years has greatly reduced private support of education in all but the private schools. Today private schools enroll approximately 10 per cent of the children in the elementary grades, 7 per cent of the pupils in high school, and nearly 50 per cent of the students of collegiate grade.

An analysis of the income of institutions of higher education shows that both public and private schools are the recipients of endowments, gifts and grants. In most cases the public endowments are derived from public funds, whereas those of private schools have been built up by private subscription. Gifts and grants from private sources accrue to both public and private schools, although the proportion is much greater in the case of the private ones. In 1938 receipts from endowments contributed \$64,722,732 or 24.9 per cent of the income of private institutions of higher education. In the same year, receipts from private gifts and grants amounted to \$4,535,238 or 1.7 per cent of the income of publicly supported institutions, and to \$32,373,019 or 12.5 per cent of the income of privately supported institutions.²

Since the financial depression of 1929, there has been a definite tendency toward the decrease of income derived from endowment funds which has made it necessary for private institutions to seek new sources of revenue. One form this quest has taken has been the demand for governmental support of private schools. (See FOUNDATIONS, PHILANTHROPIC.)

W.C.R.

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PHOBIA. A phobia is an intense, morbid, irrational, and uncontrollable fear caused by

objects do not ordinarily constitute fear-exciting stimuli, such as dogs, cats, chickens, lightning, darkness, etc. Such fears, which attach to specific objects or situations, are usually the outcome of some specific process of emotional conditioning, usually in early life, whose cause may have been forgotten or repressed because of its painful character. Thus the unreasonable fear of flying creatures in a twenty-seven-year-old teacher was traced to the unexpected flying of a chicken against her face when she looked into a barrel. A feeling of "numbness and heart-stabbing fright" still induced in a twenty-eight-year-old man by lightning, wind, or rainstorms was traced to a terrific storm that occurred when he was seven, in which the sight of his mother's worried countenance added to his fright. In some instances factors other than conditioning are responsible, and a large number of phobias represent the attachment of fear to an object as a means of lessening the anxiety which has developed because of basic emotional insecurity or the frustration of instinctive drives.

There are nearly as many specific phobias as there are situations that can be experienced. However, the process of acquiring the phobia is the same, regardless of the particular phobia in which the process finally results. Some of the more common phobias are claustrophobia (fear of enclosed places), agoraphobia (fear of open spaces), acrophobia (fear of high places), pyrophobia (fear of fire), nyctophobia (fear of darkness), misophobia (fear of dirt or contamination), ailurophobia (fear of cats), and phobophobia (fear of fear).

The victim's recognition of the absurdity of the fear and his knowledge that it has no rational basis usually do not effect a cure unless the real cause is discovered and the emotional effects extinguished by the method of expression—that is, recall and verbalization of the causative incident and reliving of the emotional experience. Expert assistance is usually required to unearth the cause of a phobia that has transferred to a different kind of object or situation than that which originally gave birth to the fear. The result of this transferral is known as a *symbolic* fear or phobia.

It is clear that the teacher rarely has the training and the facilities for dealing with

PHONETIC METHODS (READING) — PHONETICS

such phobias as may be found among children. Child guidance clinics (*q.v.*) are equipped to give these children the necessary professional assistance. (See FEAR).

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PHONETIC METHODS (READING)

—See READING, METHODS OF TEACHING.

PHONETICS. Phonetics is the science of speech sounds. The fields of phonetic study most generally found in the curricula of colleges and universities are: (1) experimental phonetics; (2) comparative phonetics; (3) historical phonetics; and (4) study of phonetic alphabets, which is also found occasionally in the secondary schools and even in a few primary schools.

Experimental phonetics is usually presented by means of laboratory equipment, such as oscillographs, kymographic drums, tuning forks, sound filters and spectra, and recording machines. Here the emphasis is put upon the measurement and description of the acoustical phenomena of speech sounds from an objective point of view. Speech sounds are analyzed according to their physical properties. Sometimes, the relationships existing between the anatomy of the speech mechanism and speech sounds are stressed.

Comparative phonetics, as the term implies, deals with a study of the speech sounds and intonations of two or more dialects or languages. Phonographic records are ordinarily employed in classroom demonstrations and practice periods. Thus, the like and unlike aspects of say, Southern American Speech and New England Speech, or French and Spanish may be studied.

Historical phonetics traces the mutation of speech sounds from one age to another. For example, courses in the history of the English

language often include a consideration of the sounds of English speech from the age of Beowulf down to the present time. Vowel and consonant changes are described and accounted for.

The study of phonetic alphabets in speech courses is widespread, especially in the eastern part of the United States. Since there are approximately forty speech sounds in American speech and only twenty-six letters in the English alphabet, additional symbols are needed when consistency of written representation of pronunciation is needed. Thus, the words *certain* and *curtain*, although spelled differently, are pronounced alike except for the initial sound in each word. The rendering of these two words into phonetic transcription provides for a consistent representation: *kə'tən*, *sə'tən*. Words phonetically represented are known as *ear words* and those spelled are called *eye words*. The following nursery-rhyme sentence is rendered half in eye words and half in ear words:

Hickory, dickory dock,

ðə maʊs ræn əp ðə klak

The phonetic characters used in the example are those of the International Phonetic Alphabet, commonly referred to as the IPA, the most widely used of all phonetic alphabets, and adopted by the International Phonetic Association. Its chief educational uses have been found to be: (1) as a tool in the study of pronunciation; (2) as a device for describing the speech patterns of the speech-handicapped; (3) as a procedure for building articulation tests; (4) as a means of constructing rehabilitation exercises and drills in articulation and enunciation; (5) as an aid in ear-training. (See SPEECH EDUCATION.)

J.F.B.1

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PHONIC METHOD (READING)—See **READING, METHODS OF TEACHING.**

PHONICS. Methods of teaching word recognition by teaching the sound equivalents of printed letters and phonograms and the technique of blending them so as to form words are called phonic methods. Such methods, when mastered, provide the child with a means by which most unfamiliar words can be deciphered. They have fallen into disfavor as systematic methods of teaching beginners because they tend to retard rate of reading and to emphasize mechanics at the expense of comprehension. It is recognized that the ability to identify, pronounce, and blend common word elements is necessary for independence in word recognition. Many children acquire this ability with little or no specific teaching. The majority are helped by a planned program of phonic instruction supplementary to the basic sight recognition approach, and for the few pupils who do not make much progress with the usual sight methods, a systematic phonic method is frequently very helpful.

Phonic readiness is usually developed by giving practice in finding words that rhyme, words that begin with the same sound, etc. Letter sounds and phonograms are introduced by pointing out similarities and differences in words that have already been learned as wholes. In sounding words, there are several methods, each of which has its advocates. The word *land*, for instance, may be sounded *l-a-n-d*, *l-and*, *la-nd*, or *la-and*. Each of these procedures works well with some words and poorly with others. A good reader needs flexibility in his methods of attacking words and exclusive devotion to any single procedure is undesirable.

In teaching an adequate method of attack on long words, the main requirement is emphasis on a systematic procedure of dividing the word into recognizable groups of letters and combining them in left-to-right order to get the whole word. The teaching of grammatical rules of syllable division is not essential. If the pupil has difficulty learning these more or less arbitrary rules, he should be encouraged to look for letter groups that seem to him to form natural units. In many schools syllabication is taught in spelling rather than in reading lessons. (See **READING, METHODS OF TEACHING.**)

A.J.H.

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PHONOGRAM—See **PHONICS.**

PHYSICAL EDUCATION — See **HEALTH; HYGIENE AND HEALTH EDUCATION.**

PHYSICAL GEOGRAPHY—See **GEOGRAPHY, TEACHING OF.**

PHYSICS—See **SCIENCE, TEACHING OF.**

PHYSIOLOGICAL AGE—See **GROWTH AND MATURATION.**

PHYSIOLOGICAL LIMIT—See **LEARNING, CURVE OF.**

PHYSIOLOGY—See **SCIENCE, TEACHING OF.**

PIAGET, JEAN (1896-). For a number of years, Piaget has been, simultaneously, professor of child psychology at the University of Geneva, co-director with Pierre Bovet of the Institut J. J. Rousseau (a teacher training institution affiliated with the university) and director of the Bureau International d'Éducation in Geneva, Switzerland. The significance of his work for modern education stems from his active participation in all three fields of endeavor.

His earliest researches on the development of language and logical reasoning in young children bear the earmark of his still earlier training and original work in zoology. He collected and classified stenographically recorded conversations of four to six year olds—much as he used to collect, classify and analyze changes in function and structure in mollusks of the Valaisian Alps. Then, assisted by an ever increasing number of inspired student collaborators, he undertook a great number of developmental investigations on concept formation and changing methods of reasoning in children ranging from five to thirteen years of age. Utilizing spontaneous questions of children as well as their replies in informally conducted, though roughly standardized and verbatim recorded, interviews, he was thus able to outline a remarkable developmental picture of the child's progressively maturing explanation of various

phenomena. Such phenomena ranged from "being one of three brothers" to concepts of family and country, the origin of thoughts, names and dreams, concepts of life and consciousness, the origin of sun, moon, air and other processes of nature, including simple man-made machines as well as more complicated mechanisms.

Utilizing an unexpected and brief experience as a professor of sociology, he proceeded, upon resuming his career as a psychologist, to a penetrating experimental verification of Durkheim's moral sociology—through a developmental study of the child's sense of moral obligation and responsibility. On the one hand, he compared children's actual practice in playing marbles with their developing awareness and verbalized concept of the rules of this game. On the other hand, extending his earlier researches, he inquired into their methods of moral reasoning through clinical interviewing techniques. He was thus able to probe the manner in which children of different age-levels judge and compare simple moral situations involving children and adults as well as children playing and working among themselves—including such concepts as different forms of lying, degrees of severity and fairness in punishments, etc.

In summing up and interpreting his findings, Piaget attempts to account for the progressive changes and maturation of child language and thought in terms of his theory of decreasing egocentricity. While stressing the basically biologically given nature of intelligence, in keeping with his early zoological background, he actually arrives at a social psychological explanation here—emphasizing the causal rôle of interpersonal relations between children and adults as well as among children themselves. Under the influence of Bleuler, Janet, Blondel and, especially, Durkheim, he ascribes the most primitive and immature stages of child language and thought to a relative lack of socialization or of experience in balanced give-and-take forms of communication among human beings. On this analysis, the onesidedly oppressive influence of adults would at first reenforce the initial, "spontaneous" self-centeredness of children—as a result of helpless dependence on adult omniscience and omnipotence. Conversely, the more egalitarian nature of contacts among children them-

selves would facilitate and largely bring about the socialization of child mentality—through the increasing needs and opportunities for give-and-take cooperation, independence, reciprocity, and relatively coercion-free communication which can only obtain among social equals. It is thus a struggle between the constraining influence of authoritarian adult prestige and the liberating, properly socializing influence of democratic cooperation among children as equals. More or less slowly, the latter comes to prevail and the child becomes intellectually less dependent and hence less egocentric, more objective and realistic in all forms of reasoning. For instance, he becomes less animistic in his view of the physical world, i.e., he eventually ceases to endow inanimate objects with his own characteristics and conscious motives—as he progressively learns to differentiate between himself and the rest of the world. He comes to recognize and to reckon with the other person's point of view under the impact of his recurring contacts with other children who can freely contradict him and whom he in turn can freely contradict. From initial egocentric unawareness of himself and of his egocentrically distorted perspective of things and persons, he arrives at a more objective perspective. His socialization consists of his growing recognition that others do not necessarily think as he does and of his increasing ability to see himself as others see him.

A great number of European and American investigators attempted to verify Piaget's findings on developing child thought. The number of investigations thus inspired by his pioneer studies in itself attests to the value and significance of Piaget's work. In the light of such follow-up studies, his findings on the extent of egocentric speech as such would appear least unequivocal, while his discoveries on the child's conception of physical and, especially, moral phenomena would seem rather correct. Further studies are needed and these may well result in some clarification of existing discrepancies even in the matter of child languages—since Piaget's followers so far have failed to account for differential factors of language and general cultural environment of the children studied by them, in comparing findings with those in the original researches. His theory

of egocentricity, too, bears further scrutiny since it does not quite fit certain relevant clinical observations. Even though somewhat inconsistent and rationalistic in relation to more dynamic factors of social-emotional growth, it provides a suggestive partial framework for the whole field of child development and child education.

Piaget is a very inspiring teacher and practitioner of progressive methods of education. Future educators and practicing pedagogues have been coming to Geneva in great numbers during the last two decades in order to work with him not only at the university and at the Rousseau Institute but also at the International Bureau of Education. Carrying over his research theory of coercion vs. cooperation in relation to egocentricity in children, he came to emphasize principles of the activity school for all age-levels, closely following Dewey and Claparède (*qq.v.*). In addition to thus stressing issues of educational "self-government" by children, directly influencing numerous practicing and future teachers, he has also been influential in spreading such principles through ministries of education in many European and South American countries through pedagogical publications of the International Bureau of Education and through yearly conventions sponsored by the latter agency, under his leadership. (See CHILD PSYCHOLOGY.)

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PICTOGRAM—See GRAPHIC METHODS.

PIERCE CASE—See PARENTS, RIGHTS OF.

PITUITARY GLAND — See ENDOCRINE GLANDS.

PLACEMENT EXAMINATION. A test designed to afford a basis for the admission and classification of students in a particular subject is sometimes called a *placement examination*. Placement examinations usually provide separate measures of aptitude and of training in such fields as English, foreign languages, mathematics, and the physical sciences. They may be used in combination with or in lieu of tests of general intelligence in the guidance of college students. The training tests are valuable in diagnosis as well as in prognosis. (See DIAGNOSIS, EDUCATIONAL; GUIDANCE; PREDICTION OF SUCCESS.) C.C.R.

PLANT, SCHOOL—See ARCHITECTURE, SCHOOL; BUILDINGS, SCHOOL; CUSTODIAL CARE.

PLATEAUS, LEARNING—See LEARNING, CURVE OF.

PLATOON SCHOOL — PLATOON PLAN. The term *platoon* comes from the unique plan or form of organization in the platoon school, which provides for the division of the total pupil population of a specific school into two groups or platoons of approximately the same number of children. Under this plan of organization, the schedule of classes is so arranged that the children in one platoon are in regular classrooms or "homerooms" receiving instruction in the fundamental subjects and skills while the pupils in the other platoon are participating in special activities in specially designed and equipped rooms. At a given signal at specified times during the day, the two platoons exchange places. The children in Platoon A, who have been studying the fundamental subjects or skills in the regular classrooms, leave to engage in those activities that are scheduled in the specially equipped rooms or playgrounds in which Platoon B has been working or playing; while the children in the latter group go to the regular classrooms for the same type of study in which Platoon

PLAY

A had been participating during the preceding period.

This division of the total population of a school into two platoons—the scheduling of classes in alternating groups so that every classroom and all the specially equipped rooms as well as playground facilities are in use as nearly as possible every hour of the school day—achieves the secondary purpose of the platoon school in providing an organization through which the most effective use of the school plant may be made. This economy feature can be seen easily by comparing the platoon school with the usual type of school organization in which a seat and desk are provided each child to be used solely by him during the school day. In the platoon school, a desk is used by a child in one platoon during one-half of the school day and by another child in the other platoon during the other half of the day. Through this sharing of equipment and space according to a schedule that emphasizes full utilization of the school plant facilities at all times, the school organized on the platoon plan can accommodate two *duplicate schools* functioning at the same time with a combined enrollment of nearly twice as many children as would be possible in the typical school organization.

The economies resulting from the use of the platoon plan, both in per capital operating costs and in relieving overcrowded conditions, are so marked that most of the critics of the platoon school as well as many of its ardent enthusiasts overlook the contribution its diversified curriculum makes to the all-round development of children.

The platoon plan of organization is only a means to an end in achieving the more fundamental contribution of the platoon school. Its primary consideration is to provide for children a rich, diversified, and well-balanced curriculum, implemented by extensive facilities in the form of specially designed and equipped studios, shops, laboratories, libraries, gymnasiums, auditoriums, and playgrounds in addition to the typical elementary school classrooms. An amount of time equal to that devoted to the intellectual development of the child is given daily to activities contributing to the child's social, physical, and æsthetic development, instead of providing only a few minutes each week

for the perfunctory participation in these activities as is characteristic of the typical elementary school. However, the unique plan of organization of the platoon school has attracted so much more attention than its program of studies that the terms "platoon plan" and "platoon school" have become synonymous in the minds of most people.

The first platoon school was organized in 1900 in Bluffton, Indiana, by William Wirt, Superintendent of Schools. In 1908, Mr. Wirt left Bluffton to become Superintendent of Schools in Gary, Indiana, where he introduced a plan of education later known as the Gary Plan (*q.v.*) and which included the platoon plan of school organization.

Practically every school system that has adopted the platoon plan has developed certain unique features based on a philosophy of its own. This difference in details and in philosophy, whether great or small, has resulted in a large number of names by which the various schools are called. Some of the names used today in referring to a platoon type of school are: *Work-Study-Play School*, *Semi-Departmental School*, *Duplicate School*, *Gary Plan School*, *Companion Class School*, *Alternating Plan School*, *Recitation-Study-Play School*.
W.V.N.

PLAY. Play is defined not by the type of activity engaged in but by the distinctive attitude which the player takes toward the activity. In play, it is the activity itself rather than the results which count. Though the player may work to improve his skill in the game, it is he who sets up his standards, and failure to achieve them does not result in loss of status. The relaxation derived from play comes not from the factor of rest (children commonly play "hard") but from the absence of emotional tension related to the activity. The player enters the game voluntarily and he is free to leave. For a child, play means in particular that there are no adult forces which constrain him, adult forces which keep him at the activity or which make him pursue the activity in a certain manner. Whatever values he may get from his play, he does not enter upon it because of these values. He plays because he enjoys it; when he does not, he stops playing.

Activities which are commonly called play do not meet all of these criteria. It has become customary to distinguish between free

play and organized play. In so far as the organization of organized play consists of a set of rules imposed by someone on the players, to that degree does the game lose its spirit of play. If, however, the rules of the game, whether taught the players by an outsider or not, are rules which they are ready to follow because of the game and not because of the authority, then even a highly organized game can have all the value of play.

Though a child plays without thought of furthering his development, the value of play to his development is exceedingly great. His active play exercises his muscles and brings about needed motor coordinations. Through needed play he explores possibilities in himself and in his environment. His investigations gain him new sensory experiences and add to and develop his stock of meanings. Though he is free to imagine and to dramatize, his play with things teaches him to respect reality. He learns that though he may say "this is only in fun," real actions have real consequences.

Besides serving as a means towards his physical and intellectual development, play is the chief medium through which the socialization of the young child takes place. As he plays more and more with children near his own age, he experiences relatedness to others. He feels both his likenesses to them and his differences from them and he gains a sense of belonging. He finds that even where there are no adult rules and regulations to obey, he cannot have things all his own way. Play with a group shows him that complete freedom—anarchy—is an impossible state, that companionship necessitates mutual adjustments. He thus learns that cooperation is fundamental to satisfactory living. Of course, play does not teach all children all these lessons equally well. Nevertheless it is the medium through which much of children's social learning is brought about.

Social adjustment and the learning of social relationships go hand in hand. Play affords children an opportunity to improve in both these areas. Through imaginative dramatic play, even when engaged in alone, the child re-enacts his world until he has its relations down to his satisfaction. The young child finds it difficult to figure things out in words alone. He needs more concrete symbols. With his toys he recreates scenes from his own life which puzzled him or which did

not turn out to his liking. He may play the same situation many times either so that he can have his desires on a symbolic level when he is denied them on the real level (a form of play which corresponds to daydreaming), or till at last he comes to accept the situation in the form that he knows it is going to occur on the real plane.

For the child to be able to work out his aggressions and his impossible hopes on a symbolic level with toys which represent the people and the things closest to him is considered by psychologists and psychiatrists to be of great therapeutic value. At the same time, these projective play techniques which permit the child's repressed and tension-producing desires to assert themselves reveal to the psychologist some of the causes of the child's behavior. (See PROJECTIVE TECHNIQUES). Great care must be taken in making the interpretation of the child's play since the same dramatizations made by different children may mean different things. The interpretations have been found most helpful when used as clues to further investigation into various aspects of the child's life. When psychologists have given parents possible interpretations of their children's play, the parents have themselves often been able to identify some of the specific factors operating to bring about certain behaviors on the part of their children.

Since social development involves moral or ethical development, it should be expected that any medium which provides their social development also provides for the moral development of children. Popular language recognizes this value of play in the expression, "learning to play the game," which has been generalized to mean learning to keep to the code of honor. In his study of the moral judgment of the child, Piaget (*q.v.*) watched children at play in games which had fairly definite rules and in which two or more players were needed. He found that the youngest children, who broke the rules most often, felt that these rules could never be changed and that they had been set up by some absolute authority. On the other hand, the children of eleven to thirteen who were still playing these games stuck closely to the rules though they saw no reason why the players could not change them if they wanted to. However, the changes had to be agreed to by all the players and once the new code

was decided it had to be obeyed. Piaget does not imply that the attitude that the group is responsible for the making and the keeping of its code of law, an attitude developed in the playing of group games, will necessarily transfer to an attitude towards social law in general. Indeed, he points out that certain factors in the playing of marbles, which help to develop such an attitude towards the rules of that game, are absent in many life situations, thereby preventing transfer of the attitude from taking place. He believes that the lack of adult constraint with regard to the rules of marbles playing, particularly for the oldest players, allows the children to grow out of their naive belief that all rules are divinely instituted, and to look upon rules as part of cooperative playing. It is because the situation is an autonomous one for the older marbles players that the "morality of duty" can change to the "morality of goodness."

Whether or not this generalization of Piaget's is upheld, it is seen that the manner in which children's play is supervised and guided will affect the kind of values which they derive from it. If the child is to learn certain rules of social living through the give and take of group play, then adult interference must be kept at a minimum. If children are to learn how to settle their quarrels, then they must be given opportunity to settle them as they arise during play. If children are to lose their timidity in the use of playground apparatus or to be helped not to develop it at all, then apparatus suited to their level of skill must be provided so that the adult's supervision need be little more than watching from a respectful distance to see that serious accidents are prevented. Aside from this, the function of adults on children's playgrounds is to help insure optimum conditions which will allow spontaneous and self-directing activities on the part of all of the children and upon occasion to introduce new games as well as new equipment.

If games are to retain their value of play, then games taught to children must be carefully suited to their age level. Highly organized games are not suitable for the youngest children. Indeed, practically all of the play program of children below the age of five should be supervised rather than directed. If the teacher or play group director wishes to broaden the children's play, he may do so in two ways without direct teaching. First, he

may introduce new equipment which naturally leads to new play. Secondly, he may widen the children's experiences by taking them on excursions, telling them stories, showing them pictures. Since children's dramatic play reflects their experiences, these new experiences will enter into and shape their play. Indeed, some schools are using this technique as one of their main pedagogical methods in the primary grades. Such a technique, even when used largely to facilitate learning, may at the same time retain many of the values of real play, provided the activity is not regimented. (See Toys.) B.B.F. and M.S.Q.

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PLAY LEADERSHIP—See RECREATION.

PLAY PRODUCTION—See DRAMATICS.

PLAY SCHOOL. A play school is an organized group of children who come together after school, and in some instances on Saturdays in winter and all day in the summer, to engage in a variety of educational activities under adult guidance.

The outstanding feature of the play school is the emphasis placed on play as a basis of learning and growth. Based on the theory that a child's present and future physical, social, emotional, and mental well-being is affected by the play activities in which he engages, much of the program of the play school centers around those forms of play such as dramatics, music, constructional, art, and physical activities which offer the greatest possible contributions to the development of the individual. In addition, trips and excursions are provided in order to help children develop or refine concepts relative to their environment. Hot lunches, mid-morning and mid-afternoon milk and rest periods, and physical examinations followed by necessary corrective measures are provided to pro-

mote the physical development of the children.

The play school is more or less a revolt against the traditional idea that "education" is synonymous with "schooling" and that learning takes place only from September to June each year. Play schools have been built on the idea that education is a continuous process which goes on the year around, in or out of school, winter or summer.

Play schools are more likely to be found in the larger cities where there is apparently more need than in less populated and rural areas for providing all day care and constructive activity for young children during the summer months and the late afternoon and on Saturdays during the winter months.

While the length of session, the activities provided, the age and type of children served, and the organization and administration of the program vary, the emphasis on play as a means of learning is characteristic of all play schools.

The play schools in New York City, sponsored by the Play Schools Association, an organization of lay and professional people, are among the better known play schools. These schools are financed by funds derived from both public and private sources. They are located in settlement houses, in public and private schools, in community centers, and housing developments. Playgrounds are used extensively for physical activities, including swimming and showers in the summer. In addition to many volunteer workers, each school is generally staffed with a director, one teacher for every twenty or twenty-five children, a clerk, part-time specialists, a neighborhood worker, a person qualified as a parent education leader, and kitchen and custodial staffs.

W.V.N.

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POINT SCALE—See **AGE SCALE**.

POLITICAL SCIENCE — See **SOCIAL STUDIES, TEACHING OF**.

POOR-LAW SCHOOLS. In some of the early American colonies, particularly the Middle Colonies, schools for pauper children

were established as charity schools, financed by endowments and gifts. When the colonies became states, provisions were made in their constitutions and by legislative enactments for the establishment and support of such schools.

The pauper-school concept was an inheritance from the English class system, and was foreign to the principles of equality inherent in a republic. The schools were attacked bitterly by those who opposed the branding of the poor as a separate class and the development of such class distinctions in our democracy. Many of the people for whom the poor-law schools were intended refused to declare themselves as paupers, and thus made themselves ineligible to enter their children in these schools. As a result of such objections as these, the poor-school laws were gradually revoked and the idea of charity schools for the poor ultimately rejected by the American people.

E.H.W.

PORTLAND PLAN—See **PROMOTION**.

POST-DOCTORAL EDUCATION. The objectives of post-doctoral education are the advancement of research and further training of younger scientists or scholars through study, travel, or added experience in field or laboratory. Of late years there has been a marked increase in the number of fellowships or grants-in-aid awarded to encourage study and research beyond the doctorate. The grants administered independently of the universities are from the national foundations, institutes, councils, and scholarly societies, including the Carnegie Corporation of New York, the Rockefeller Foundation, the Guggenheim Memorial Foundation, the National Research Council, the Social Science Research Council, and the American Council of Learned Societies. (See **COUNCILS OF LEARNED SOCIETIES; FOUNDATIONS, PHILANTHROPIC.**)

Among the better known administrative plans for post-doctoral education are those of the Institute of Advanced Study at Princeton; the Institute of Human Relations at Yale University; and the Advanced School of Education at Teachers College, Columbia University. The chief interest of the Institute of Advanced Study is post-doctoral work of the pure-research type, in which the educative experience comes through informal contacts among scholars engaged in cooperative tasks.

The Institute of Human Relations emphasizes the acquisition of research skills in related fields, an inter-disciplinary type of training. The Advanced School of Education seeks to promote the professional growth of doctorates who are actively engaged in educational work.

C.V.G.

POWER TESTS — See STANDARDIZED TESTS.

PRACTICAL ARTS EDUCATION.

Practical arts education refers to instruction given in one or more of a group of subjects all of which involve practical skills and related knowledge. Practical arts education differs from vocational education (*q.v.*) or training in several important respects. Among the chief purposes of practical arts education are (1) to give tryout or exploratory experiences involving a variety of representative tools, materials, and processes used in the world of work; and (2) to give an appreciative understanding of a variety of activities, of processes, and of design as used in the practical arts in man's effort to provide clothing, food, shelter, utensils, tools, and many forms of machines and equipment used in modern life.

Practical arts education is prevocational in nature. It provides orientation for youth before a vocation is selected. It seeks to produce, as Dr. Frederick J. Bonser said, "intelligent consumers as contrasted with efficient producers"; the training of efficient producers is the chief concern of vocational education. Practical arts education is more general than vocational education.

One phase of practical arts education is *industrial arts education*, a modernized, expanded, and enriched form of the kind of instruction formerly known as *manual training*. There are corresponding phases in other fields. For example, school gardening and 4-H Club activities, as carried on in rural communities, are forms of practical arts education. Similarly, general courses in business education, such as introductory courses in junior business practice, typewriting, and bookkeeping are forms of practical arts education. Courses in general home economics, as commonly given in junior high schools and in some senior high schools, are also forms of practical arts education as distinguished from vocational education. Practical arts

education is not aided through federal grants under such acts as the Smith-Hughes Act of 1917 and the George-Deen Act of 1936. (See INDUSTRIAL ARTS EDUCATION.) F.T.S.

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PRACTICE—See DRILL.

PRACTICE EFFECT—See RETESTING.

PRACTICE PERIOD—See LEARNING.

PRACTICE TEACHING—See STUDENT TEACHING.

PRACTICE TEST. A *practice test* ordinarily consists of a series of diagnostic tests, each followed by a number of practice exercises. The diagnostic tests and accompanying exercises are so arranged that the pupil can ascertain his own weak points and then turn to the particular practice material designed to correct such errors. Relatively few practice tests have been standardized or published (e.g., *McCall-Crabbs Standard Test Lessons in Reading*, Bureau of Publications, Teachers College, Columbia University). (See INSTRUCTIONAL TESTS.) J.J.

PRACTICUM. The term *practicum* has as yet achieved no fully standardized meaning, but in general it refers to the attempts of some institutions of teacher education to relate more closely the study of educational theory and practice with actual student teaching experience in campus schools or off-campus schools.

In many institutions the "practicum in teaching" takes the full time of the student for a semester or part of a semester in the junior or senior years and represents appropriate credits of work. In such cases the practicum includes both student teaching in a school situation, and conferences or seminars

devoted to a discussion of the problems met by the student in student teaching. The conferences or seminars may be conducted at the school or at the college and may be conducted by the critic teachers of the schools, or by the staff members of the college, or by both jointly. In this way the student is aided in analyzing, interpreting, and applying desirable principles of teaching in his student teaching. The conferences or seminars commonly devote attention to such problems as: the development of specific teaching techniques; methods of preparing, organizing, and presenting materials; classroom management; keeping of records; use of diagnostic and achievement tests; remedial teaching; and patterns of child growth and development.

In other institutions the practicum is a term referring to the attempt to integrate the regular college courses with the student teaching experience or with special field study experiences whereby the student gains first-hand acquaintance with the schools and community in which the student teaching will be done. In this case the college courses and the field studies together constitute a practicum in the professional study of teaching, the purpose of which is to plan classroom instruction so that the field study is made more meaningful and so that the field study in turn vitalizes classroom instruction at the college.

In still other institutions the term practicum applies to a regular course at the college, conducted prior to or parallel with student teaching, and covering such topics as the aims of education, the desirable conditions for achieving such aims, methods of child accounting, demonstration lessons, conferences, case studies, and participation and observation, but not including actual student teaching. (See *TEACHER EDUCATION*.)

R.F.B.

PRAGMATISM. The term, pragmatism, has been notable in education as the theoretical underpinning for the progressive education (*q.v.*) movement. If this movement has not one, but a cluster of meanings, it is due in part to the fact that pragmatism itself is not a single philosophy. On the contrary, there are a variety of pragmatisms, several of which have been particularly prominent in education.

When the term pragmatism was first lifted into philosophic prominence by Charles Peirce, the mathematician, it was used to denote a logical process intended to aid in making ideas clear. This process proposed that the meaning of an idea should be determined by the practical or pragmatic difference it would make if it were assumed to be true. As between two ideas, if there were no difference in effect, it could be concluded that either the difference was purely verbal or the two ideas meant the same thing.

This point of view remained almost unnoticed till William James (*q.v.*) gave it wide circulation. Before long, however, James made a significant extension of the notion. While Peirce merely put pragmatism forward as a logical way of clarifying ideas *if the ideas were true*, James proposed the pragmatic test for the nature of truth itself. Ideas were to be held true *if they worked*. In other words, if the practical consequences of acting on an idea brought an individual personal satisfaction, if they had a "cash value" (but not necessarily a monetary value, to correct a false impression this famous metaphor of James' has often created), the idea was to be considered true "in so far forth." While James contemplated limiting the application of pragmatism only to problems not otherwise verifiable, many of his followers applied it indiscriminately to problems where other criteria of truth would suffice.

In a brand of pragmatism, which he called humanism, the English philosopher, Schiller, extended pragmatism as an epistemology into a theory of metaphysics as well. If truth is affected by individual interest, choice, or purpose, then the truth must change both as interests change and as experience with consequences in action dictates. This in turn would seem to indicate that truth is not something antecedent to action but the outcome of it. Truth is made; it is verified. If so, and since truth involves the relations of objects to thought, it must follow that the making of truth implies a making of reality.

The individualism and plasticity inherent in these views met a storm of protest. Indeed, Peirce not only repudiated these extensions of pragmatism, but went so far as to rename his original view pragmaticism. Even John Dewey, although indebted to these thinkers and popularly classified with the pragmatists,

has been careful to indicate his differences from them by labelling his own views instrumentalism and, later, experimentalism. Confronted with problems arising out of a precarious universe, man seeks to solve them by inquiry, by gaining control over the contingent factors involved. After forming a conception of how this adaptation might be made, he acts upon it *experimentally* after the manner of science to see whether the consequences which flow from action bear out his anticipation. Or, this is an instance of *instrumentalism* if one employs biological language and emphasizes the rôle of mind or intellect as the tool of adaptation.

In either event, the basic realism of Dewey's pragmatism should be noted. Truth is admittedly a matter of correspondence between belief or thought and the objects or facts to which they refer. Correspondence, however, depends, not on perception, but on the successful working out of some overt alteration of physical circumstances, the outcome of which will test the correspondence between fact and idea. Truth as workability or success is measured, not "in so far forth" as the outcome is satisfying, as indiscriminating followers of James held, but by the extent to which it leads toward and corresponds with the results anticipated. Furthermore, verification so described is so obviously predicated on the realistic character of the precarious in existence that Dewey must be dissociated from Schiller's conception that making truth implies the making of reality itself.

Since activism (*q.v.*) is the essence of the various interpretations of pragmatism, it is easy to understand how this philosophy has come to undergird the activity program of progressive education. Activity, pragmatically speaking, is not undertaken on its own account or because it is merely developmental, but rather because it has a unique function to perform in inquiry, whether that inquiry is carried on in the laboratory or the school-room. Because the demand for action grows out of inquiry into an indeterminate situation, the problem method is preeminently the pragmatic method of classroom instruction.

Moreover, pragmatism has supported emphasis on the employment of interest in learning because the pragmatic test of truth is, in some sense or other, affected by the interest

or purpose of the investigator or learner. But it will make considerable difference here whether one measures the "success" of such an educational practice from the point of view of James or Dewey. In the former, a much more subjective view of studies is likely to prevail, while in the latter, there is a more objective standard against which to judge. Objectivity involves here both the physical and social for Dewey; truth must be measured not only in the pragmatic correspondence of idea and fact, but also in a way that is public for all to see.

Pragmatism, especially for Dewey, thus has definitely democratic implications. Experience from one situation must be made available for understanding subsequent ones; a maximum amount of sharing of experience must be encouraged between individuals and groups. Freedom for individuality is a necessary concomitant of pragmatic education because the experimental approach to a precarious universe will more likely be successful where there is an abundant variety of controls suggested. Creative education will also find support in pragmatism but again one must distinguish carefully between Dewey's conception of contriving to adjust means to ends and Schiller's conception of creating reality itself.

Neither the emphasis on freedom or creativity points to a disregard of tradition. The culture of the past enters the curriculum, not as an end in itself, but because it is instrumental in the solution of some contemporary problem. It is these problems, furthermore, out of which the aims of instruction arise. Education in general has no aims; pragmatically, only such as teachers, parents, and pupils have aims. Moreover, these educational aims are instrumental to nothing outside of the educational process; in fact, education is subordinate to nothing save more education.

The chief criticism directed at pragmatism as a philosophy of education is that it is only a method. That it elevates method to primacy may be admitted at once. Yet this very fact has implications for a world view. As already indicated, it implies a precarious universe, a world "with the lid off," as James so appropriately described it. Such a world is dynamic and pluralistic. Its ethics, like its empiricism, is thoroughly naturalistic.

Though it looks askance at the transcendental, it is not irreligious (James, *Varieties of Religious Experience*; Dewey, *A Common Faith*) and is positively moral since all conscious education involves preferences and the formation of fundamental social attitudes. J.S.B.

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PRECEPTORIAL SYSTEM. The preceptorial system varies in meaning among the few colleges which use the term. Colgate University, for instance, successfully uses preceptors for individual conferences an hour a week with freshmen. Elsewhere the term is occasionally used also to refer to other individual instruction or advising. The system is best known for, and therefore best defined by, its use at Princeton University. As inaugurated there under the leadership of Woodrow Wilson about 1905, it provided that classes would meet only twice a week instead of five times a week with an informal conference of half a dozen students and a preceptor replacing the other three meetings. Fifty new members were added to the faculty at one time in order to operate the plan. The system was successful from the start and was perhaps the first marked step by an American college toward making undergraduate instruction informal and individualized. It has also supplied precedent for tutors, independent study plans, honors seminars, and quiz sections, as well as for the abandoning of the traditional professional ideal of aloofness. To a large extent it eliminated the disadvantages of both large classes and very small classes. While it usually retains most of the disadvantages of short-term, "academic" courses, its only apparent inherent defect is its failure to provide truly individualized con-

ferences. (See LIBERAL ARTS COLLEGE: TUTORIAL INSTRUCTION.) M.G.F.

PRECOCIOUS CHILDREN—See GIFTED CHILDREN, EDUCATION OF.

PRE-DELINQUENT. A child whose social activities are beginning to show early signs of lack of respect for properly constituted authority or for the property and personal rights of others but whose behavior has not yet been adjudged delinquent by a Juvenile Court. Such a child frequently feels a lack of affection, status, and success. These unsatisfied and rejected feelings make him an easy victim of a poor social environment or of unscrupulous individuals.

The use of the term pre-delinquent has been objected to because of the implication that these children are doomed to a life of delinquency and crime. One large school system went so far as to organize a series of pre-delinquency classes for those pupils whose maladjustments were becoming increasingly serious. Changing the name of these classes to adjustment classes reflected a change in the attitude of the administrators and teachers and suggested a positive rather than a negative educational program. The term has been criticized on the further ground that it has little value as a means of describing or classifying children. (See JUVENILE DELINQUENTS.)

M.S.Q.

PREDICTION OF SUCCESS. Guidance (q.v.) is one of the most acute problems of the modern school, and any sound guidance program is conditioned upon the ability to forecast the future. Various aspects of guidance make it important to be able to predict academic achievement, vocational success, and the successful adjustment to personal and social situations.

In education, the prediction of success means that an individual is measured in a trait which can be measured, and that from his score or rating in this trait is predicted the most probable degree to which he possesses another trait that is not readily measurable, or that cannot or should not be measured. Thus we may administer a scholastic aptitude test to high school seniors and use their scores on this test as a means of predicting their ability to succeed at college.

The basis for the prediction is the degree of

PREDICTION OF SUCCESS

relationship between measures of the two traits. The closer the relationship—that is, the higher the correlation (*q.v.*)—the more accurate the prediction. Thus if the correlation between students' scores on scholastic aptitude tests and their success at college is high, the scholastic aptitude scores are a better basis for prediction than they would be if the correlation were low. The closeness of relationship between two traits is determined by the extent to which the individuals at a given level in one trait vary in the other trait. The relationship is close if all students who receive low scores on one trait also get low scores on the second trait; the relationship is far from close if those students who get low scores on one trait have a wide distribution of scores in the second trait. In fact, the actual prediction procedure is in terms of that variation—the *error of estimate*.

The error of estimate is the standard deviation of the individuals in one trait who are at a given level in the other trait. Although this variation is not the same for all levels of one trait, one value of it is computed—an average error of estimate—and used for all predictions for the two traits involved. The formula for the standard error of estimate is $\sigma(\text{est. } Y) = \sigma\sqrt{1-r^2}$. In other words, if on the basis of an individual's score on Trait X we predict his score in Trait Y, that prediction is in such terms as: the chances are 68 in 100 that his actual score in Y will be within $\pm 1 \sigma$ est. of his estimated score; the chances will be 95 in 100 that his actual score in Y will be within 2σ est. of his estimated score.

In education, as in other phases of life, prediction is usually improved by using more than one factor as the basis of prediction. There is little reason for using the students' scores on scholastic aptitude tests as the sole basis for predicting college success when such other factors as the students' high school record and intelligence test ratings are also available. The scores on two or more tests may be used as a combined basis for prediction by employing the statistical techniques of multiple correlation and multiple regression equations. It is possible to determine by statistical procedures what optimum weights should be allowed for the various factors; sometimes all factors should receive equal

weights, while in other instances the accuracy of prediction can be improved by allowing some factors much more weight than others. Afterward, *critical scores* may be determined which represent the minimum scores likely to be associated with success in the area where the predictions are made. Common uses for such critical scores are for admission to college and for eligibility to employment in Civil Service.

One of the safest generalizations that can be made regarding the present status of prediction is that it is subject to a considerable measure of error. Prognosis is always in terms of probabilities, never in terms of certainties. This is due to errors in the measures of success available, as well as in the instruments of prediction employed. For example, success in school is measured commonly in terms of school marks, which are notoriously unreliable, and vocational success is determined by salary earned or by the judgment of the employer, both of somewhat doubtful validity. Criteria for success in personal and social adjustments probably are subject to even greater error. Chance errors always tend to reduce the coefficients of correlation obtained.

It is no doubt partly because these errors are not constant that predictions vary from school to school, from subject to subject, and from student to student. Standards vary so widely among schools that a student may fail completely in one and succeed in another. It is well known that intelligence tests predict success better in reading and arithmetic than in handwriting and physical education. It also seems possible to predict the achievement of students at the extremes of the distribution more accurately than the achievement of those near the center.

It is always easier to hit a big target than a small one, and particularly so with imperfect instruments. This explains why it is easier to predict the average marks of students in college or secondary school than it is to predict marks in the separate subjects, and why it is always especially difficult to predict the achievement of a particular individual in a given situation. Factors may afford satisfactory predictions of the average performance of groups and yet be most hazardous for predicting individual achievement. Further research is greatly needed upon differential predictions, that is, upon ability pat-

terms associated with achievement in various areas.

Prediction as a statistical procedure is in terms of the average, not of the individual student. The prediction for individuals is often much less accurate than the accuracy of prediction for the average. Thus the statistician, given a group of students who have identical scores on scholastic aptitude tests, high school records of equal merit, and equal ratings on intelligence tests, can predict fairly accurately how well these students, as a group, will fare at college. The registrar, on the other hand, using the same measures as the basis for selecting prospective freshmen, cannot be so accurate in predicting the college success of an individual applicant for college entrance. A great many factors, aside from purely statistical ones, complicate the problem of prediction for the individual. The college success of a given individual may be different from that predicted for him for such a reason as a change in the family finances, with the resultant need for carrying a part-time job while he goes to college. The statistician is confident that not all students will fall in love, contract influenza, meet an inspiring teacher, or find a personal goal that makes college work increasingly significant. The registrar and the dean, dealing with individual students, cannot be so certain that such factors as these will not destroy the accuracy of their predictions.

Education is no exception to the general rule that the only way to predict the future is by the past. It is not surprising, therefore, that the best basis for predicting achievement on any academic level is the student's record to date. Marks in the elementary school usually give the best single basis for predicting success in the secondary school, just as marks in the secondary school usually do for college. In like manner, as a rule, the best basis for predicting achievement in advanced courses in any subject is the earlier record in that subject. This also seems to be true for graduate and professional schools, as well as to a considerable extent for life outside. (See PROGNOSTIC TEST.) C.C.R.

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PREFECT PERIOD—See HOME ROOM.

PREPARATORY SCHOOLS. The term *preparatory* when applied to schools usually refers to preparation for college. All cosmopolitan or non-specialized secondary schools have at least one curriculum designed to prepare the students for college. But only those schools that exist primarily for this purpose are usually referred to as preparatory schools. They are chiefly private schools, and many of them, particularly those in the New England and Middle Atlantic states, stem from the colonial grammar school or are the outgrowth of the academy movement of the 19th century. Some originated as an adjunct to a college, and serve primarily as a tutoring school for that college. The large majority, however, are independent and privately controlled and prepare for admission to any college.

The tradition associated with a few of the better known preparatory schools is at least as strong as that of many colleges. Waiting lists for enrollment are not uncommon, and membership in families of previous graduates is at least a decided asset, if not almost a prerequisite, for admission to a few of the more exclusive schools.

Although most preparatory schools are for boys only, some exist for girls, and a small number are coeducational. (See SECONDARY EDUCATION.) J.B.

PREPARENTAL EDUCATION. Education designed specifically to prepare young people for future parenthood. Although many kinds of education make indirect contributions to this end, the term *Preparental Education* is usually applied to instruction concerning the characteristics and needs of children, and parent-child relationships. Such instruction may be given in specialized courses which deal also with other aspects of home making and family life (See FAMILY LIFE, EDUCATION FOR).

One of the most important features of preparental education is the provision of opportunities for actual contacts with small children to supplement theoretical instruction on child development. Pioneer work in this connection was done by the Merrill-Palmer School. Several colleges and universities and

a few high schools maintain nursery schools which serve as laboratories for their students; in most other institutions which offer preparental instruction, the cooperation of the independent nursery schools, elementary schools, day nurseries, clinics, settlement houses, private homes, etc., is secured. Sometimes there are demonstration cottages in which the care of a baby or small child can be taught. Students contact with children may include only the demonstration of child care techniques by an instructor, or it may include directed observation and note-taking by the students, or actual experience in caring for and working with the children.

At the college level, preparental education in its more intensive form is apt to be restricted to students (usually women) who are majoring in such fields as home economics, education, or child psychology. Training at the high-school level and earlier, where the curriculum and the students' interests are usually less specialized, has the advantage of reaching more students, including those who marry at an early age and others who do not go on to college. The extension of preparental education to young men and boys has been carried out by a few colleges and high schools, though much remains to be done in this direction. Non-academic agencies which offer preparental instruction include the YMCA and YWCA and the 4-H clubs. (See also EDUCATION FOR FAMILY LIFE, PARENTAL EDUCATION.)

B.B.L.

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PRESCHOOL EDUCATION. The educational experiences of the child from birth to entrance into the first grade of elementary school.

In its wider sense this is a recognition of the fact that the child is receiving an informal education before he begins to learn to read and write and study arithmetic. This education comes from contacts with adults and children both within and without the family

and from actual experience in living.

In its narrower sense this term is used to designate nursery school, kindergarten, or kindergarten extension experience. (See NURSERY SCHOOL; KINDERGARTEN; KINDERGARTEN EXTENSION.)

J.N.H.

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PRE-SERVICE TEACHER EDUCATION—See TEACHER EDUCATION.

PRETEST. A *pretest* (also called *initial test*) is a test designed to gauge the pupil's knowledge before he begins the study of a new topic or unit of work. Pretesting enables the teacher to determine the equipment which each pupil brings to the study of the topic and the range of individual differences in his class. The pretest thus helps the teacher to pitch his instruction at the level shown by the class as a whole, and to discover those pupils whose previous knowledge is below the class average so that he may provide the necessary individual assistance. Special projects may be designed for those pupils whose pretest results indicate advanced standing.

Pretests are used at the beginning of an experiment to determine the status of the group at the outset. Improvement is then measured by increases in the scores on the equivalent tests used at the end of the experiment. J.J.

PREVIEW COURSES. Preview courses were organized at the junior high school level to assist pupils in an exploration of interest and abilities. In the field of language, for example, these courses consist of short units in Latin, French, Spanish, German, or Italian. The pupil is introduced to various languages that he may choose more intelligently a language for further study. (See GENERAL LANGUAGE.)

Likewise, courses are organized in the field of industrial arts dealing with such activities as printing, electricity, woodworking, sheet metalworking, etc. Such courses are often designated as exploratory or broadening and finding courses. They operate from nine to eighteen weeks. In the science field, "general science" is often considered a preview course since it gives a general orientation to the entire field of science. Following such

preview courses the pupil is allowed to select a field for further study. W.H.B.

PREVOCATIONAL EDUCATION.

Various forms of practical arts education such as industrial arts, general business education (e.g., typewriting and bookkeeping), general home economics (e.g., introductory courses given in junior high schools), and general agricultural education (e.g., school gardening) are often mentioned as forms of *prevocational education*. These activities are prevocational in that they provide exploratory experiences in representative forms of general education before vocational choices must be made, before vocational education is undertaken, or before persons must enter employment—hence prevocational.

These experiences and others of a similar nature have a prevocational value in the sense that they add to the preparation for a specific vocation, as premedical training does for physicians and as prelegal training does for lawyers.

Claims as to the prevocational value of representative materials, tools, processes, and techniques used by young people in the world of work must be restricted to those for which value can be proved. Experience has shown that the conditions under which so-called prevocational education is given in schools are sometimes very different from those found in actual practice in the vocations themselves. (See VOCATIONAL EDUCATION.) F.T.S.

PRIMARY LEARNING—See LEARNING, SIMULTANEOUS.

PRINCIPAL, SCHOOL. Elementary School Principal. The title of principal of an elementary school was first used in New York and Buffalo about the middle of the 19th century. These early principals were little more than head teachers and assumed few duties of administration and supervision. The importance of the office developed with the rapid increase in school enrollment which made necessary large elementary school buildings and increased the problem of accounting and monitorial work incident to the graded school system. The principal also assumed more supervisory duties and in some cases became the chief supervisor of his building.

The training of elementary school prin-

cipals has increased gradually since the early period until now most of them in the large schools hold bachelor's or master's degrees. Studies show that in 1932 about sixty per cent of men elementary school principals and forty per cent of women had more than four years of college training.

Elementary school principals are frequently classed as supervising principals (*q.v.*) and teaching principals. The former devote the major portion of their time to the supervision and administration of the school. This position is more commonly found in the larger schools than in the smaller ones. The teaching principal devotes the larger part of his time to teaching and a smaller part to supervision and administration. Guidance is now generally considered as the function of the elementary school principal.

In 1940-41 the salaries of elementary school principals ranged from an average of \$1,878 for supervising principals in school system in cities of 2,500 to 5,000 population to \$4,621 in school systems of over 100,000 population.⁴ In general the salaries of principals vary with the amount of training and experience and the size of the school system.

Secondary School Principal. The position of secondary school principal is an outgrowth of the position of master of the Latin Grammar Schools and the academy of an earlier day. The modern high school principalship was developed during the period from about 1820 to 1860, and roughly paralleled the period of the establishment of the superintendency. In many cases the superintendent of schools took charge of the secondary schools, and in some he served as principal. As the secondary schools developed, the principalship emerged as a distinct position apart from the superintendency. The secondary school principal assumed more administrative responsibility and devoted less time to teaching. He also assumed large supervisory responsibilities in his school.

The qualifications of high school principals are usually higher than those of classroom teachers; in addition to training in teaching they usually have special administrative and supervisory training. In many of the large high schools and in the secondary schools accredited by the North Central Association they are required to have the master's degree or its equivalent. In 1931 the

PRINCIPAL, SUPERVISING

National Survey of Secondary Education reported that in communities of 5,000 to 500,000 population, forty-four per cent of the high school principals held bachelor's degrees, forty-two per cent, master's degrees, 1 per cent doctor's degrees, and thirteen per cent, no degree.¹

The high school principals are usually selected by the superintendent of schools and appointed by the board of education. In addition to their educational qualifications, they are usually persons who have had experience as teachers. The tendency to require teaching experience has been a growing one and is now generally a requisite for appointment.

In 1940-41 the median salary of high school principals in school systems in cities of 2,500 to 5,000 population was \$2,136; in cities of 5,000 to 10,000 population, \$2,596; in cities of 10,000 to 30,000 population, \$3,303; in cities of 30,000 to 100,000 population \$4,806.⁴ The size of the school system with its attendant responsibilities is an important factor in the determination of salaries. It is also true that principals in the larger schools are better prepared and have had more experience than those in the smaller ones.

With respect to the principal's duties and responsibilities, both practice and the judgment of administrators show a wide variation in the distribution of time and functions. The National Survey of Secondary Education shows that the average percentage of time of principals of schools in communities of 100,000 population and over devoted to the following activities is: administrative, 40.2 per cent; clerical, 9.5 per cent; public relations, 8.5 per cent; research, 7.2 per cent; supervisory, 26.6 per cent; teaching 3.1 per cent; guidance, 10 per cent; and other types of activities, 3.3 per cent.¹

In the small school systems the high school principal devotes much time to teaching, and in addition carries on the clerical activities of record keeping, schedule making, discipline, etc. The major administrative responsibilities for the schools are assumed by the superintendent.

W.C.R.

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PRINCIPAL, SUPERVISING. The Seventh Yearbook of the Department of Elementary School Principals traces the development of the elementary school principalship through five stages: the one teacher, the head teacher, the teaching principal, the building principal, and the supervising principal. The duties of the first three are largely teaching; those of the fourth, administration; and those of the fifth supervision. The supervising principal is a well trained professional worker who is freed from teaching and clerical duties in order that he may devote the major portion of his time to the improvement of instruction.¹

In 1928 the median school under a supervising principal enrolled more than 600 pupils and most frequently included grades from the kindergarten through the sixth. The median number of years of college training was 4.13 and the median experience 23.84 years, 10.14 of which were spent as a principal.¹

In 1938, a study of some 12,000 principals showed that about one-third held full-time positions and were regarded as supervising principals, somewhat more than one-half were teaching principals, and about ten per cent were divided between principals with assistants and principals of several schools. In cities of 2,500 to 10,000 population about 90 per cent were teaching principals, whereas in cities of over 100,000 population 70 per cent were supervising principals. About one-third of the elementary school principals were men and two-thirds women, but the proportion of men was larger in the large cities and smaller in the small ones.³

The salaries of supervising principals in elementary schools were generally higher than those of teaching principals. In 1940-41

median salaries of supervising principals in cities of 2,500 to 30,000 ranged from \$1,878 to \$2,220; in cities of 30,000 to 100,000 \$2,470; and in cities of over 100,000, 3,420.² (See ADMINISTRATION, SCHOOL; PRINCIPAL; SUPERVISION OF INSTRUCTION.) W.C.R.

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PRINT SCRIPT WRITING—See HANDWRITING, TEACHING OF.

PRISON SCHOOL. In a majority of the prisons throughout the United States there may be found what is called a prison school, although there are a few prisons wherein no educational activities of any kind exist. Where there are no educational activities it is common to find a large number of the prisoners wholly idle. Occasionally a few of them may do a certain amount of work each day, and it is not unusual in such places to find some inmates assigned to administrative duties which give them an opportunity to carry on a wide variety of objectionable activities for the benefit of themselves and their personal friends.

Now and then prison officials (often as a result of stimulation by prison chaplains) try to combat the evil effects of idleness by the establishment of prison schools. In such cases the officials are more concerned, if not altogether, with occupying the time of their prisoners than with bringing them educational benefits. They know that the busy prisoner is less likely to be troublesome. The direction of such prison schools is usually by the chaplain (or occasionally by a prisoner or an employee) while the teachers are usually prisoners. As a rule the organization of the school aims to follow traditional lines. Objectives are obscure. Inmate teachers are poorly prepared and lacking in competence. There is a meager supply of materials and equipment. Old discarded textbooks are used. There may or may not be a prison library containing few if any useful books.

Some correspondence or cell study courses may be included, usually not. Generally, the program will be restricted to standard academic subjects. Sometimes only the illiterate prisoners are admitted, although some prisoners may be students in the school for the purpose of reviewing elementary subjects. The school may be located in some part or parts of the prison unsuitable for other purposes, and, therefore, for school purposes.

During the past twenty-five years, and particularly since 1930, there has been a marked and rapid change in the organization and development of prison schools. The prison riots of the latter part of the decade 1920-30, gave considerable impetus to a critical examination of American penological practices, which a few years earlier had been brought into the limelight as a result of the work of Thomas Mott Osborne and others. Perhaps Osborne's efforts may be considered to have been the birth of twentieth century modernization of viewpoint and method in penology. During the years 1927-28 Mr. Austin MacCormick visited all prisons and reformatories for men and women (State, Federal, Army, Navy) in the United States with three exceptions. As a result his book "The Education of Adult Prisoners: A Survey and a Program" was published by The National Society of Penal Information in 1931. This book became a potent influence in stimulating the development of modernized and more effective educational programs in penal institutions everywhere. Since then the type of prison school already described here has begun to disappear. In its stead there are now many prison schools operated for the primary purpose of making available to prisoners the benefits to be derived from purposeful education.

Large prison systems such as the Federal system and the New York State Department of Correction employ Directors of Education and staffs for the purpose of centrally directing all education activities of the system, including the training of personnel. In such systems usually may be found competent, professionally trained institutional directors of education, supervisors, librarians, teachers, and vocational instructors; broad and comprehensive curricula; fairly adequate supplies and equipment and up-to-date school and shop buildings. Also, there are excellent libraries, correspondence courses, cell study.

PRIZES

courses, vocational and related vocational classes, directed recreation, physical and health education, mental hygiene education, music and art classes, guidance service, and employment service—in fact, all of the constructive and purposeful educational activities one would expect to find incorporated in a progressive educational program. Between the poorest and best prison schools heretofore described are those of the majority which range from fair through average to good in organization, offering, personnel, supplies and equipment. Today the trend is definitely toward the improvement of the prison school. Some of the best educational opportunities available below the college level in the country may upon rare occasions be found in a penal institution. The penal institutions of New York State, Wisconsin, Michigan, and California have excellent comprehensive educational programs while numerous other states are not far behind. The prison schools of the Federal system are also excellent. (See CORRECTIONAL EDUCATION, REFORMATORY EDUCATION.) W.M.W.

PRIZES. The use of prizes and awards as an incentive for improvement is an educational practice with a history almost as long as that of education itself. Prizes and awards have taken many forms: they have been as tangible as gold medals and sweaters, as symbolic as the piece of ribbon worn on the lapel, and as immaterial as the right to call oneself a Central High School Scholar. They are used in kindergarten classes and are found in graduate schools. That prizes and awards have been employed for so long a period of time and at so many different levels of education is evidence enough of the faith which teachers have in their appeal as incentives.

In modern educational theory, the use of prizes does not enjoy the high prestige that its continued use in our schools should imply. Although their use does offer an immediate and an obvious reward for effort and achievement—a reward that may stimulate many students—objection has been raised to the extrinsic motivation on which reliance is placed. To some critics, the use of prizes seems to imply that the work is not worth doing for its own sake. If the students know what they are doing and why they do it, is it necessary to add the incentive of a prize

for those who do it best? These critics see in the prize a confession by the teacher that the work has so little significance to students that only the prospect of winning a prize affords the incentive to continued progress.

Teachers have objected to prizes because they tend to stimulate only the best students in the class without improving the work of the other students who may need the added incentive. When an announcement is made that blue ribbons will be awarded to all students who maintain an average of at least 85 per cent in all subjects, the mediocre student soon learns that there is so little hope of his receiving the award that his is only the spectator's interest in a race. The practice has grown up therefore of awarding prizes for outstanding improvement as well as for outstanding achievement.

From the mental hygiene point of view, prizes and awards have been criticized because of the attendant emphasis on individual competition rather than on cooperation, and because of the emotional problems that may be accentuated by the stress of competition and the sting of failure. If the prize is given to the pupil who writes the best essay or who paints the best picture, the pupil may see little reason for sharing his experiences with his classmates or for helping them to improve. For this reason, awards and prizes are often awarded to groups rather than to individuals; thus the attendance banner may go to the class that has the best attendance. Even this modification may not solve the problem, for group pressure may compel a child to come to school on days when his cold should keep him at home. Other schools attempt to reduce the disadvantages of prizes and awards by increasing the number of students who may earn them and by extending the list of traits in which excellence is recognized. Thus all students who meet a given standard may have the satisfaction of seeing their names on the Honor Roll or the Dean's List. Recognition may be given for such intangible traits as initiative and service to others as well as for such academic qualities as success in passing Spanish tests.

It is difficult to justify the use of awards as a subterfuge for bribery. The high school and college student should see in the minimum academic requirement set for eligibility for an N.Y.A. position a means of restricting

these positions to students who can fill them without endangering their status as successful students rather than a monetary reward for doing the homework regularly. It is difficult, too, to do more than sympathize with the teacher who feels compelled to hold before the class bully the prospect of appointment to a monitorial position if he will stop molesting the younger pupils.

It is nevertheless true that many schools employ prizes and awards without having any of the dire results which are so easily anticipated. In such schools there are usually wholesome pupil-teacher relationships, adequate attention to the students' personality needs, and ample opportunities for all students to understand the significance of the activities in which they engage and to experience the thrill of success and social recognition.

C.M.R.

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PROBABLE ERROR — See **RELIABILITY**.

PROBATIONARY TEACHER. In several states and a number of cities, a teacher who has served conditionally in a school system for a stated period of years and has been reappointed for the following year, has a stated legal right to continuous employment during efficient service. The period of conditional service is called a *probationary period*; and the teacher while serving thus is known as a *probationary teacher*.

The period of probationary service varies in the cities and states having tenure laws, the most common maxima being from two to five years. In Ohio, for example, except in certain small communities, a teacher may be placed on tenure after serving from one to five years on probation. (See **TENURE**.)

As a rule, the probationary teacher carries a regular teaching and extracurricular program, although he is usually supervised more

closely than is the teacher who has attained tenure. The basic distinction between a probationary teacher and the teacher on tenure is that the probationary teacher may be released by the school at the expiration of his contract without the necessity for the filing of charges and the holding of a hearing, both of which are required when a teacher on tenure is dismissed. Some school systems give the probationary teacher an annual report which includes an evaluation of his ability and an enumeration of the respects in which further improvement is expected. In some schools, if a probationary teacher is not reappointed, he may be given a statement of the reasons for his non-reappointment, even though such a statement is not required by law.

The practice of regarding the newly-appointed teacher as a probationary teacher is a means of safeguarding the school system against granting tenure to teachers who seemed to be persons of promise when they were appointed but whose performance on the job did not reach the high level demanded by the school system. On the other hand, setting a definite time limit to the probationary period protects the teacher from the uncertainty attendant upon an unpredictable delay in his attaining tenure. By learning within the first few years of his association with the school that he will not be accepted as a member of the permanent staff, the teacher can make the necessary personal and professional adjustments with less hardship than if he were released after several years of service at that school.

A.V.O.

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PROBLEM METHOD. The problem method refers to the use of the problem-solving procedure in organizing classroom activities. To use such a procedure it is necessary to have a problem as the challenge or stimulus for learning. A problem may be defined as some difficulty, perplexity, or doubt requiring solution and for which no ready answer can be given. In everyday life we are constantly dealing with problems that stimulate or challenge us to find a solution. For such situations no ready-made "book answers" are available. To solve them we

are stimulated to search, to inquire, to look for necessary materials, and to consider critically all factors bearing upon the problem in order to reach a satisfactory solution. Such activity involves reflective thinking and other experiences vital to real learning. The use of the problem method in school is an attempt to realize the values of such experience. It should be clear that the success of the problem method depends largely upon the nature of the problems chosen and the challenge they offer to the pupils.

There are two distinct ways in which problem-solving is ordinarily used by teachers. One is to make use of problems incidentally in connection with the other work of a course or unit, chiefly to improve comprehension or to perfect some ability or skill. The other is to organize a course or units as a series of problems to be solved. A Problems of Democracy course, for instance, may be organized in terms of such problems as The Rights of Minorities and the Conflicts between Capital and Labor. While the latter provides the possibility of more nearly approximating life situations, and therefore gives valuable training, many educators contend much that needs to be learned in school, especially in so-called "skill subjects" like arithmetic and foreign languages, can be learned more effectively through direct teaching and learning, supplemented by the use of problems for practical application. At the high school level, the problem-solving approach can be used most effectively in the natural and social sciences.

There are at least four essential steps in problem-solving, which may be described as follows: (1) recognition and statement of the problem, (2) inspection and proposal of a solution or solutions, (3) critical evaluation of and attempt to apply proposed solutions, and (4) verification of accepted solution. While these four steps are essential, seldom will they occur in precisely the preceding order. According to Dewey's illustrations of reflective thinking in problem-solving, one proposed solution after another is likely to be tried out and discarded before even the final and accepted solution is thought of. Under some circumstances the gathering of data may take some time before any proposals are forthcoming. For these reasons, some teachers have proposed the

following three step problem-solving procedure as a guide to effective training: (1) Introductory step—introduction and statement of problem—the challenge, (2) Developmental step—proposed solutions, gathering data, critical evaluations, formulation of conclusions, (3) Application or Summarization step—verification of results (if desired). The effectiveness of problem-solving depends much upon competent teacher guidance.

T.M.R.

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PROBLEMS OF DEMOCRACY — See SOCIAL STUDIES, TEACHING OF.

PROCTER FELLOWSHIP — See SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

PRODUCT-MOMENT COEFFICIENT OF CORRELATION—See CORRELATION (IN STATISTICS.)

PROFESSIONAL APTITUDE TESTS.

The movement for vocational guidance (*q.v.*) which sprang up in the desire to help adolescent boys and girls to discover those occupations which are best adapted to their abilities has gradually been extended upwards. With the increasing number of students enrolled in institutions of higher education it became necessary to devise methods to advise students planning to enter professional schools and at the same time, because of pressure of numbers, it also became necessary for these schools to adopt some standards of selection. From the point of view of students it was considered desirable to protect them against the "disappointment, disillusionment, and waste" of failure. From the point of view of the professional schools it was equally desirable to secure students who were most likely to succeed in their studies.

The development of professional aptitude tests began soon after World War I—first for admission to law schools, then to engineering schools, and later to schools of medicine. Only in the field of medicine has the use of

PROFESSIONALIZED SUBJECT MATTER

aptitude tests been continuous; in the other two fields their history has been sporadic, perhaps because the full support and cooperation of the respective professional organizations have been lacking. In the case of medicine the Medical Aptitude Test, developed by Dr. F. A. Moss, has been used since 1929 under the sponsorship of the Association of American Medical Colleges. In law, only in the Schools of Law at Columbia and Yale Universities has the use of aptitude tests had a continuous history over a period of years, and in engineering, only Stevens Institute of Technology has had similar extended experience with aptitude tests. Where professional aptitude tests have been used for a length of time, the records have shown that, if properly constructed, they are effective in reducing the number of failures in the respective courses. The score attained by a candidate in the aptitude tests indicates only his chances of success in the particular professional course to which he is admitted; it is no indication of success in the practice of a profession.

In the last few years experiments have been under way to construct aptitude tests in other fields of professional study—dentistry, pharmacy, and nursing. Efforts to devise prognostic tests of ability in teaching have so far failed. In the field of graduate studies the Carnegie Foundation for the Advancement of Teaching, in cooperation with a large number of colleges and universities, has developed the Graduate Record Examination as a test of the aptitudes of students in the various fields of graduate study. I.L.K.

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PROFESSIONALIZED SUBJECT MATTER. "Professionalized subject matter" is the term used to describe courses that combine subject matter and methods of teaching the subject matter under discussion. Such a course results, for example, when a traditional course in science is combined with a course in methods of teaching science. A college course in American history would be

devoted to the subject matter of American history; a professionalized course in American history would present both the subject matter and methods of teaching American history.

With the growth of the normal schools and teachers colleges (*qq.v.*) came the issue of academic versus professional training. It was argued that anything in the way of subject matter needed in the equipment of the teacher should be incorporated as a basic part of the training program. As the normal schools developed they were more and more under the criticism that they did not provide a basic general education for their students. There was also a pedagogical development which called for a training program which would equip the teacher both academically and professionally. As normal schools developed into teachers colleges the pressures applied by accrediting agencies—which reflected the point of view of liberal arts education—great emphasis was placed upon professionalization of subject matter so that teachers might receive the fundamentals of a liberal education and, at the same time, acquire the necessary teaching skills.

Two examples stand out in the effort to professionalize courses. The first is in the field of mathematics where, especially for teachers in the elementary school, refresher courses in arithmetic are included in courses dealing with methods of teaching arithmetic. In the field of science there have been substantial professionalization courses combining both content and methods of teaching. This is especially true with respect to the training of elementary and junior high school teachers.

Those responsible for traditional subject-matter courses often oppose the professionalization of courses on the ground that it is impossible to combine in a single course both content and methods. Since teachers of college subjects have given relatively little attention to methods of teaching in the subjects for which they are responsible, they naturally do not accept readily a program of professionalization. The problem in teacher-education institutions is that of finding scholars who are skilled teachers and who also are competent to devote consideration to methods of teaching the subject to others.

There is wide variation in the curriculum of teacher-education institutions with respect

to professionalized subject matter. With the coming of the junior college as the first two of the four-year period of teacher-education institutions, wider interest has been shown in general education. Such "general education" courses are organized for the purpose of giving a broader survey in subject fields or areas. This makes it possible to defer "professionalized content," since the latter part of the training course is devoted to methods, thus freeing the earlier years for general education.

W.H.B.

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PROFESSOR, COLLEGE — Sec COLLEGE FACULTY.

PROFILE GRAPH. A graphic representation of an individual's performance on a series of tests or a series of ratings of his personality traits. After the student has been given a series of tests and his raw scores have been converted into comparable scores by using standard scores or a table of norms (*q.v.*), the profile graph makes it possible for the teacher to depict all of these converted scores on a single graph. The subjects in which the student has been tested or the personality traits on which he has been rated are equally spaced along one of the coordinate axes of the graph, and the converted scores are indicated along the other axis. These points are then connected to form a *psychograph* or *trait profile*. Such a graph makes it possible for the teacher to see quickly how the student's achievement compares with that of the average child, and it also enables the teacher to see at a glance whether the child's abilities represent an even level of achievement or whether there are any special abilities or weaknesses in the various subjects and traits.

J.J.

PROGNOSIS—See PREDICTION OF SUCCESS; PROGNOSTIC TEST.

PROGNOSTIC TEST. A prognostic test is one designed to predict the pupil's ability to learn a specific school subject. The most widely used prognostic tests have been developed in secondary school mathematics and foreign languages; for example,

the *Orleans Algebra Prognosis Test* (World Book Co., New York), and the *Symonds Foreign Language Prognosis Test* (Teachers College, Columbia University). The *Metropolitan Readiness Test* (World Book Co., New York) is illustrative of the relatively few prognostic tests constructed for use with elementary school children.

In general, three techniques have been used in constructing prognostic tests: (1) The mental functions entering into the mastery of the particular subject are determined and a test is developed to measure these functions; (2) a series of sample lessons in the subject is presented to the pupil, each lesson being followed by a test to determine how much he has learned; (3) a test is administered to determine the pupil's knowledge in a given field before he begins formal study of the subject. These three approaches are concerned in large measure with the pupil's ability to master the content of a given subject. Success in any school subject, however, is influenced by a host of environmental and psychological factors which, of necessity, must be disregarded when constructing the prognostic test. The tests do not measure, for example, the quality of the pupil's study habits or the strength of his motivation for school success. As a consequence, the test by itself cannot predict perfectly future success in a given subject. In fact, correlations between scores on a prognostic test and academic success are usually about $+.50$ or $+.60$, much too low for accurate prediction of the level at which an individual may be expected to work.

Despite the weaknesses of prognostic tests, they are valuable in the guidance and placement of pupils. When used in conjunction with other measures of ability, such as intelligence tests, they give a better indication of future success in a specific subject than does the use of an intelligence test alone. Prognostic tests are, therefore, a useful device for reducing the wastefulness of school failure. Scores on prognostic tests may be used as a basis for classifying students so that those who are likely to experience difficulty in a particular subject may be put into a slow progress class, while other students who will probably learn much faster can be grouped in another class. Prognostic tests also increase the effectiveness of instruction by making it possible for the teacher to

PROGRAM, DAILY

diagnose student weaknesses and to plan appropriate remedial work at the beginning of the term's work. (See PREDICTION OF SUCCESS.) J.J.

PROGRAM, DAILY. As applied to a school or classroom the *daily program* is a time and work schedule of major activities, used to guide pupils and teachers each day that the school is in session. The program usually contains the time or period for each class to meet during the school day in each of the various subjects or areas of experience, and, sometimes, the periods for study, work, or other activities as well.

There has been a decided trend in elementary schools away from rigid adherence to a fixed daily program and toward one which is flexible and easily adapted to changing school conditions and needs. The following flexible daily program has been used successfully in small schools carrying large curriculum units.³

Opening period.—Varied activities and shared experiences, including news, reports, and observations.

Planning the day's activities.—Time enough to plan the enterprises for the day.

Work period.—A long period (60 to 75 minutes) for construction and art work, experiments, creative writing, or cooperative activities.

Relief period.—Length and frequency varying with the maturity of the children.

Physical education and health.—At least 20 minutes for learning games and discussing health problems.

Evaluation period.—Time enough to discuss and evaluate the forenoon's work.

Noon hour.—Lunch and recreation.

Practice in skills.—In various fields, such as reading, spelling, arithmetic, art and music, and creative expression.

Opportunity period.—Individualized work wherever children need help, as in hand-writing, reading and speech, science, appreciation materials, and hobbies.

In a weekly program, class and other learning periods are distributed on a weekly basis. There is considerable variation in the time when class periods in different subjects come each day, but the program for any one day is like the program for the same day on preceding weeks. The accompanying table is an example of a fourth-grade weekly program.⁴

Begin	Minutes		Monday	Tuesday	Wednesday	Thursday	Friday
9:00	30	45	Music	Science and Health	Music		Language
9:30							
9:45	60	45	Arithmetic		Arithmetic		Arithmetic
10:30	15		Physical Education and Play				
10:45	75		Reading	Social Studies	Reading	Social Studies	Reading
12:00	60		Luncheon and Play Period				
1:00	60	30	Language	Reading	Social Studies	Reading	Social Studies
2:00			Writing	Writing or Music	Art	Language	Writing
2:30	15		Physical Education and Play				
2:45	30	45	Spelling	Language		Spelling	
3:15							
3:30	45	30	Art	Spelling	Writing	Science and Health	Art

PROGRESSIVE EDUCATION

The teacher should follow principles of program construction that have been developed scientifically, have been tried out experimentally, and have stood the test of repeated use. The following are examples of sound principles that meet these criteria:

A period of physical rest should immediately precede practice activities requiring steady muscular movements.

Younger children should have shorter but more frequent periods for class meetings than older children.

More time and longer periods should be devoted to subjects or areas of experience which are most important and which have the most thought content.

A part of the child's school time should be organized in terms of long periods for broad subject-matter fields as well as short periods for minor divisions of subject matter and the practice of specific skills.

It is desirable to merge or fuse related subjects, such as history, geography, and civics, or language, writing and spelling, so that the weekly time allotment to a given division of the work may be greater.

In making a program the teacher should follow certain clearly defined steps. He must collect the necessary information about the school, the pupils, the classroom, the curriculum, and the time. He must know the type of school organization, the number of pupils and their maturation levels, the room accommodations and instructional supplies available, the curriculum requirements and textbooks in use, the building time schedule, and any time allotments for various subjects which may be required.

When he has collected this information he is ready to plan the program. In this connection several questions arise: What type of program is desired? May any subjects or grades be combined for instruction time? How many weekly periods of determined length will be allotted each subject or activity field? Issues like these may be decided by local administrative policies and plans. In others, the teacher will be guided by approved principles of program-making, such as those listed above.

In preparing the program the classroom teacher should begin by entering on his program form the limits of time determined by the building time schedule. He is then ready

to schedule class groups in accordance with sound principles of program-making. He should work to secure the most effective sequence of classes and the best time for each subject. As the work nears completion the program should be checked for determining where improvements are possible. (See SCHEDULES, SCHOOL.) C.M.R.

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PROGRESSIVE EDUCATION. The term Progressive Education took on its present defined status with the organization of the Progressive Education Association (*q.v.*) in 1918 under the leadership of Mr. Stanwood Cobb. The movement itself is, however, much older, as well as much broader and deeper.

It seems historically justifiable to say that this movement began with Rousseau (1712-1778) (*q.v.*) and the *Émile* (1762). But it was Pestalozzi (1745-1827) (*q.v.*), much influenced by Rousseau and the general humanitarian stirring of his day, who began the significant remaking of the school along the lines here under study. His influence was world-wide and reached America through many channels, in the remaking of arithmetic and geography, in the making of our graded schools (coming by way of Prussia especially through the work of Horace Mann), in Sheldon's "object lessons," and in the later influence of Herbart (1776-1841) and Froebel (1782-1852) (*qq.v.*), both of whom studied with Pestalozzi.

But "progressive education" as we now know it is mostly an American product, owing much to Francis W. Parker (1837-1902) and John Dewey (1859-) (*qq.v.*), with Stanley Hall (1846-1924) and others having a lesser share. Colonel Parker started the actual teaching along this line and stirred great interest, first at Quincy, Mass., and later in Chicago, particularly at the Cook County Normal School. John Dewey, partly through

"the Dewey School" (1896-1903) at the University of Chicago, but largely through his writings and university teaching at Chicago and Columbia, has furnished the philosophy of education on which the progressive education movement has mainly gone forward.

Progressive education is a movement, not a creed; but it seems possible to state its main features as follows:

1. It is the democratic movement brought into childhood. In a new sense and to a larger degree the child is to be respected as a person, and childhood is not to be used merely as means and preparation for a later adulthood. Also, while parents and teachers are to remain in control, they will seek to extend as far and as fast as possible the area, fixed by them, in which the child is allowed and encouraged to make decisions on his own, learning of course to give due consideration to the rights and feelings of others.

2. It holds that children and youth—all people in fact—learn what they live as they themselves accept it to live by; further, that they learn this in the degree that they live it or count it important to them; and finally that what they thus live and accept (i.e., learn) they incorporate at once into their behavior structure (as mind and character). Moreover, it holds that the organism acts as a working whole so that each instance of learning involves an interrelated complex of thinking, feeling, and movement.

3. Since the child thus learns what he lives, the school should aim to be a place where the best possible of good living prevails, the kind of living fit to be built into character. The school is not a place where all the pupils do is learn about living. Rather it is a place where living goes on, and should be judged in terms of how good that living is.

If a child follows thoughtless or selfish whims, or fails to put forth his best effort either in thinking or doing, or yields to conduct lower than he knows to be right, then, according to progressive education, that child is, to that extent, building a lower type of character than is desirable, and his school is, to that extent, failing in its duty. On the other hand, in the degree that the child lives up to his best in thinking, in considering others, in sticking to his task even though it proves at times tedious and hard, in holding

himself thus to duty, insofar as he lives these things and accepts them in his heart as his way of behaving, and as he continues to improve upon his standards as he grows older, that child is building—and inevitably so—a better type of character, and his school can know that it is succeeding.

4. Since man can truly be man only in associated living, it becomes the social duty of the school to help each child grow up to effective living within the social group. The child should increasingly embody in himself the best of the cultural inheritance, accept the democratic obligation to improve the standard of surrounding social life, and, if possible, learn ultimately to add to that inheritance. This means, in accordance with the preceding principle of learning, that the school must not only be itself an example of desirable associated living, but that it should, as the children grow older, continually increase their interactions with surrounding social life so that they may learn, under actual living conditions, what those social conditions are, and how to control and improve them.

5. These considerations make clear why the progressive school refuses the usual practice of putting first the acquisition of "subject-matter" in isolation from its living use, and why it prefers instead to aim at the building, through high quality present living, of dynamic characters which will learn and use knowledge and skills in and for life's broader and better purposes.

The progressive education movement in its most modern phase began, we may say, in the latter part of the 19th century but spread only slowly until the end of the second decade of the 20th century. Since then it has spread rapidly in America, both in the elementary school and in the theory and practice departments of teachers colleges. Its acceptance has been slower but still real in the secondary school, and still slower but increasingly present in the college. In the United States the most common name used in connection with it is the "activity program" (*q.v.*), while elsewhere the practice is often called the "project method" (*q.v.*).

At the first, the opponents of the movement claimed that as a method it was ineffective. However, carefully conducted studies seem to show that for teaching the so-called "tool subjects" it is at least as effective as

PROJECT METHOD

any alternative, while for activities involving initiative, creativeness, broadmindedness, tolerance, honesty, and the like, it is clearly superior. The "*Eight Year Study*" (q.v.) for example, found that students from "progressive" secondary schools surpassed their "controls" along all significant lines of college success.

W.H.K.

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PROJECT METHOD. The project method of teaching refers to the use of projects as a means of organizing learning activities. The term was first used in teaching in this country in the field of manual training as early as 1900 to designate practical problems which involved making or producing some product through physical activity, without much consideration of the importance of pupil purposing or planning, although pupil planning was used. The term was gradually adopted in such other fields as home economics and agriculture, which also deal with practical problems.

After 1900 under the influence of the new psychology there was a gradual adoption of the idea that the project should be a problem-solving learning activity in which the pupil had an opportunity to choose, plan, and direct his own activities. According to this philosophy whenever the learning actually approximated the nature of a real life-problem and was planned and carried out in a practical way by the learner, it was referred to as a

project. Thus, making a dress, constructing a piece of furniture, or raising chickens for market are examples of projects. The term "home project" came into vogue early to designate a pupil planned practical problem carried to completion at home.

A further change in the interpretation of the project came about as a result of a wider acceptance of the Dewey philosophy and the attempt of teachers to plan units of learning that would be significant wholes based upon life patterns. This newer point of view was first definitely set forth in 1918 by W. H. Kilpatrick of Teachers College, Columbia University, who characterized the project as a "wholehearted purposeful activity proceeding in a social environment." This new interpretation of a project as any "wholehearted purposeful activity" was an attempt to capitalize on the fact that purposing and interest are potent factors in learning. This interpretation opened the door to the use of the term for any learning activity that had the characteristics of "wholehearted purposeful activity." As a result, there followed a period of some five or ten years during which teachers applied the term to such a variety of learning activities that the term almost ceased to have any significance as a type of organized learning activity. However, there finally evolved from this period of trial and controversy an interpretation that retained the important characteristics of both points of view.

As now generally accepted, the project is conceived as a unit of purposeful learning activity involving a practical problem complete in itself, aimed at definitely attainable goals, and planned and carried out by the learner in a natural and life-like way. Some would specify further that the ends or goals should be definitely and objectively measurable. Some teachers and laymen refer to the immaterial product, if any, as the project, whereas the real significance of the term is embodied in the concept of the unified purposeful activities that produce the material product, since these are of vital concern in determining the learning outcomes.

Projects have been classified in various ways depending upon the purposes or goals. The most common classification provides for three types; namely, (1) material projects involving the production of some material or

PROJECTIVE TECHNIQUES

physical thing, (2) learning projects involving the attainment of some ability or skill, and (3) intellectual or problem projects involving the solution of some problem or difficulty to gain knowledge or information. To these some would add the esthetic project involving enjoyment and appreciation.

The values of the project method may be summed up briefly as follows. The project method rests soundly upon the psychology that functional knowledge, abilities, and traits of character result from active participation in solving problems or difficulties. Since the pupil selects the project, or at least willingly accepts it as his own, the project starts with a purpose which is the pupil's. He sees the project as a real undertaking related to life, complete in itself, with definite, desirable goals. Then the fact that the pupil can do his own planning and direct his own activity, gives freedom and lends further importance to the undertaking. The project method is of value also because it is a means of providing for individual differences.

To realize the values claimed for the project method, the proponents of the method advocate the following teaching steps: *Purposing*, which involves the choice of the project and determination of the goals (under teacher guidance); *Planning*, which involves the choice of what is to be done and how it is to be done; *Executing*, which consists of the actual learning experiences in carrying out the project; *Evaluating* (optional with some projects), which consists of evaluating the results in the light of the desired goals.

There are two ways in which teachers usually make use of projects. One is to organize a course or portions of it by projects. The other is to make use of projects as a part of some other plan to provide extra work or to take care of individual needs or interests. Many teachers use individual projects in their differentiated unit assignments. Group projects are also used for groups or a whole class.

There are certain limitations to the project method that teachers should be aware of if they are to use it effectively. The following are the most important limitations: (1) it is difficult to provide a well-rounded curriculum of projects, since systematic teacher organization is apt to vitiate the very purpose of the project method: (2) the project planned

curriculum is apt to leave large gaps in content and needed pupil experience; (3) there is danger of much unproductive activity, wasted time, and lack of much needed practice; (4) the project method fails to give the pupil a perspective of the logical and integrated organization of the content of different fields; knowledge gained, although vital, is fragmentary. (See also ACTIVITY PROGRAM, PROGRESSIVE EDUCATION.)

T.M.R.

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PROJECTIVE TECHNIQUES. Projective techniques are methods employed by psychologists and psychiatrists in the personality study of individuals, and in the treatment of emotional maladjustments. Through the use of standardized visual stimuli or materials, information which the individual may be unwilling or unable to communicate regarding his feelings and attitudes is disclosed. Many of the techniques may be used therapeutically to reveal to the individual the motivations for his behavior, and give him an opportunity to release such emotions as fear, anxiety, and hostility.

There are many varieties of projective techniques, the most common ones being painting; drawing; finger painting; clay modeling; use of play materials, such as dolls and puppets; dramatic representations of problem situations; Stern's cloud pictures; and the Rorschach ink blot method. (See RORSCHACH TEST.) While many of them have their widest application in the diagnosis and treatment of children's emotional disorders, some, such as the Rorschach method, have a wide application in all age groups, as one of the battery of techniques used to diagnose personality disorders.

The greatest danger in the use of projective techniques is that they appear simple to use and, therefore, invite their use by people inadequately trained to recognize and handle the emotional situations created. Further-

PROMOTION

more, there may be a tendency to misinterpret the results obtained or read into the subject's activity far more than it actually represents. The unskilled worker should be especially aware of the hazards of inducing individuals to reveal, unwittingly, material about themselves which may be provocative of guilt or anxiety feelings.

Clinically, the psychiatrist working with a child might employ a play situation to enable the child to release a handicapping emotion. For instance, a small child, showing adjustment difficulties symptomatic of his hostile feelings toward one of his parents, would be helped to gain awareness of his problem and release of hostility in a controlled situation through the re-enacting of one of his problem situations, using dolls as representations of the people involved.

The teacher who makes use of modifications of these techniques should avoid any interpretations, but may utilize free painting or drawing, without concern about technical end-results, to permit children to express feelings and release tensions. G.M.A.

PROMOTION. The American school system is organized on the assumption that the child will make normal age-grade-progress and will complete a grade of schooling in the course of one year of attendance at school. Thus the six-year olds are expected to be in the first grade, the seven-year-olds in the second grade, and so on up to the twenty-year olds who should be beginning their junior year at college and the twenty-one-year-olds who should be in their senior year at college. Deviations from normal age-grade progress may be in the direction of either *acceleration* (more than one grade is completed in one calendar year) or *retardation* (less than one grade is completed in one calendar year).

Although the extent of acceleration and retardation varies with the promotion policies of various school systems, by the time children reach the seventh grade a considerable minority—in some school systems even a majority—of the children have made other than the normal age-grade-progress. Some have taken less than six years to reach this grade, while others have taken longer to reach the same grade. The amount of acceleration is small; the amount of retardation much greater. In fact, in many school systems there

are more pupils who have been retarded one or more grades than there are pupils who have kept up with each succeeding grade without either acceleration or retardation.

Since American educators are so well aware of the wide differences in pupils' mental abilities and in rates of mental growth, it may be assumed that the prevalence of acceleration and retardation reflects their recognition of the influence that differences in the pupils' I.Q. have on the pupils' rate of grade progress. If this were indeed the explanation for deviations from normal age-grade progress, the extent of acceleration should be equal to that of retardation since the distribution of intelligence approximates that of the normal probability curve (*q.v.*) and the number of children who are above average in intelligence is about equal to those who are below average in intelligence. However, probably in no school system in the United States does the amount of acceleration equal the amount of retardation.

The small percentage of acceleration is explainable on several counts. First, many school systems consider it poor policy to have a child "skip a grade," and no provision is made for a pupil actually to do the work of more than one grade in one year. Second, some schools think it unwise to put a child in a class where the majority of the children are chronologically older than he. Third, the curriculum usually offers so little challenge or interest to bright children that their performance is often much below that expected of children of superior intelligence. The actual results these children produce, when taken as an isolated criterion, may not indicate that they merit acceleration. Acceleration, where it is practiced, is usually regarded as a reward for past outstanding achievement rather than as a means for bringing about the best future learning on the part of the student.

Retardation, on the other hand, is an accepted feature of most school systems. The practice of having failing students repeat the grade has been defended as a method of disciplining "lazy" pupils and stimulating them to work to capacity, as a means of providing better adjustment for immature children, as a way of making up work lost through absence, and as an assurance that school standards will be maintained.

Many are the factors which have been

PROMOTION

regarded as the causes of retardation. Among those attributed to the child himself are: lack of mental ability; physical handicaps and sensory defects that impair the effectiveness of learning; irregular attendance resulting from illness or other causes, with consequent inability to complete essential work; ineffective study and work habits; lack of application, sustained attention, and effort; inability to assume responsibility; personality maladjustments and conduct problems from which learning crises result; and specific disabilities in one or more of the tool subjects, especially reading, in the early grades.

The school has been held responsible for such conditions as overcrowding of classes, inadequate curricula and poor grade placement of curriculum materials, inadequate instruction owing to poor quality of teaching, lack of guidance, two or more grades housed in one room, and inadequate provision for individual differences among pupils.

Among the causes of retardation attributable to the home and the environment have been included parental indifference, low standards of living, broken homes, frequent transfers from school to school, and bad associates and companions.

Pupils who at the end of a term have not met the standards set for that term are "not promoted" to the next grade and therefore repeat the work of the same grade, often with the same teacher, the same teaching method, the same textbooks, and the same assignments, and are treated as though they had been newly promoted to that grade. Repeating a grade in this manner usually brings little or no improvement in achievement. Sometimes actual regression has been the result. Feelings of frustration, inferiority, and boredom are likely to arise, bringing with them maladjustment and problem behavior. Moreover, it has been found that when repeaters are treated as new pupils, and the time they spend repeating a grade is not used for remedial treatment at the point of their particular weaknesses, their achievement in the next grade is no better than that of others of similar age, ability, and achievement in the previous grade, who were promoted to the next grade without repeating a grade. Some educators nevertheless justify the practice of nonpromotion on the ground that repeaters serve as a warning to other children. There is no proof that repeaters do serve as a moti-

vating force. In any case, many educators frown upon a method which abuses the personality of one child for some expected gain to others. The number of children who have repeated one or more grades has decreased markedly since the turn of the century, when a survey of New York City schools showed an amount of repetition that was considered appallingly excessive. The decrease has been due not primarily to better teaching but to a change in the standards for promotion.

The policy of *conditional promotion* has been used widely as a substitute for nonpromotion, both in the elementary school and in the high school. Conditional promotion is meant to indicate to the pupil that he has not mastered adequately the work of the grade but that, all things considered, he can get along in the next grade provided he puts forth sufficient effort. It is therefore meant to serve as additional motivation since the threat is held over the child that if he does not do well at the beginning of the succeeding grade he will be demoted. Actually many—sometimes estimated at 50 per cent—of those who have been conditionally promoted are later demoted. This does not help the situation either from the point of view of emotional adjustment or of learning progress. It is possible too that the conditionally promoted pupils who are not later demoted would get along better if they did not have the fear of demotion constantly with them.

The problem of retardation has also been attacked through multiplying the number of grade divisions at which promotion and nonpromotion are regularly considered for each child. While each grade still covers a year of schooling, grades have been divided in many school systems into half-grades and even quarter-grades. Nonpromotion, under such schemes, requires the pupil to repeat the work of only part of a year. Since these schemes necessitate that all parts of each grade be maintained during each school term, they can be used only in schools that have a large population for each grade. Promotion on a quarterly basis, with terms consisting of ten weeks each, was established more than seventy-five years ago in St. Louis, and is still being used there. In fact, it is often called the *St. Louis Plan*. While it did have considerable vogue elsewhere for a time, during the past decade it has rarely been in use outside St. Louis.

Half-grades and semiannual promotions are sufficiently numerous throughout the United States for comparisons to be made with regard to grade progress under annual and under semiannual promotion schemes. In semiannual promotion schools, about twice as many (about 30 per cent) of the pupils have experienced nonpromotion during their elementary school career as have those in annual promotion schools; while in annual promotion schools the amount of time lost per retarded pupil is greater. Statistical evidence with regard to the comparative merits of the two systems is sufficiently inconclusive so that changes from annual to semiannual promotion and vice versa occur in a number of city systems every year. Certain systems have changed back and forth periodically. Nevertheless, at any one time more than three-quarters of all but the smallest cities are organized on a semiannual promotion basis. A number of them, however, seek to overcome the disadvantage to the children of having a different teacher every half-year by having those children who are promoted from the first-half of the grade to the second continue with the same teacher.

Other grade-progress schemes than those which merely alter promotion periods also have been tried—schemes that demand less uniform progress throughout any one year for children of different ability. The *Cambridge Plan*, which is probably no longer in use in any city of the United States, though a number of school systems have tried it, had a double-track system from grades four through nine, grade nine being a part of the elementary school. For the pupils who followed one track, the course of study was so organized that they would normally take six years to complete the elementary school program. For the brighter pupils who followed the other track, the curriculum was arranged so they could complete it in four years. The *Portland (Oregon) Plan*, discontinued there some years ago, divided the curriculum into six units per grade. The abler children were put into special classes which covered eight units in a year. Like the Cambridge Plan, the Portland Plan tried to accelerate the brighter pupils by allowing them to learn the course of study more rapidly, rather than by "skipping" them.

Neither of the above plans embodied a scheme for lessening the amount of nonpro-

motion that dull-normal and mentally retarded children would experience. Besides having special classes for the mentally retarded, which are provided in some school systems, schools try to keep the slow learner from repeating a grade by giving him extra help through special individual instruction and remedial teaching. Under the *Batavia Plan* (*q.v.*) very large classes with two teachers to a class were organized, one of the teachers serving as a coach to the backward children.

In present practice, special tutoring for the slow child is an important part of the program for enabling him to maintain normal age-grade progress. He may get this special help at home; he may be kept after school by his regular classroom teacher; or he may receive special instruction during the day from a "remedial" teacher who serves the whole school. These tutoring schemes imply that with extra help and extra time devoted to study, the backward children can keep up with their classmates. If these pupils are backward because of absence, or because of some emotional maladjustment which kept them from learning as well as they could in a previous grade, or because they come from a foreign country and have not yet acquired sufficient command of the English language, extra tutoring may be beneficial. However, if their intelligence is low, their backwardness may be owing largely, if not entirely, to a slow rate of learning and to the fact that the material for the grade is too complex for their mental-age level. Extra tutoring plus perseverance on the part of the pupil can result in a marked increase in his verbal knowledge of facts. Therefore, in so far as the school promotes on such a criterion, these specially coached children of low intelligence will be promoted. For such children, however, promotion means an increasing rather than a decreasing struggle in the next grade.

That educators confuse children's readiness for starting upon a group of specific learning tasks (which corresponds to entering a specific grade) with the pupils' ability to keep pace with other children who start out with them is evident in most promotional schemes. It is seen clearly in practices with regard to promotion into and from the first grade. For many years educators have been disturbed by the number of children who fail in the first grade and are not promoted. The proportion

PROMOTION

of first-grade repeaters has been estimated to be twice as high as the proportion in any other grade. On the assumption that children below the mental age of six are not ready to begin the work of the first grade, some schools keep such children longer in the kindergarten or provide a prefirst or junior first grade. Once they have entered the regular first grade, however, they are expected to keep pace with the other children. This substitute for nonpromotion has the advantage that it may eliminate the feeling of failure and thus remove one of the factors that bring about antagonism toward the school—antagonism that may in turn result in poor school work. Such prefirst grades are of greater advantage to the child of poor background than to the child of low intelligence. They provide the school with an opportunity to give the child experiences which he did not get in his pre-school years, experiences particularly necessary for a successful grasp of verbal material. Although the child reaches the second grade at the same time that he would have if he had been allowed to enter the first grade and then been made to repeat it, there has been no grade repetition. The pupil has not had to go through the same curriculum twice. If the succeeding grades continue to enrich these children's lives sufficiently to make up for their continuing poor home environment, then they may continue to keep pace with other children whose home life provides them with comparatively rich experiences. Otherwise the same factors that kept them in a pre-first grade will bring about periodic nonpromotion in later years.

A different attack on the problem of first-grade failure has come from those who concluded that a large proportion of this failure was owing to the fact that the curve of learning at these younger ages is very uneven and is different for different children. It was observed that some children make a slow start in learning to read (often the sole promotion criterion in the primary grades), but later progress rapidly; while others maintain a steady pace and still others learn rapidly at the start and then slow down. Some school systems, therefore, do not put the children to a test until the end of the third grade, nonpromotion in the first two grades being eliminated completely.

Recognition that the curve of learning is

different for different children (even of the same intelligence) and different for the same child in different subjects has led some school administrators, still a small minority, to institute schemes which do not demand that all children in the class reach a specified goal before they can continue to the next grade, while those pupils who reach the goal before the specified promotion date are compelled to mark time in the meanwhile. The shift from lock-step group progress to individual progress necessitates a simultaneous shift from group teaching to more individualized instruction. (See INDIVIDUALIZED INSTRUCTION.) As soon as the attempt was abandoned to fit every pupil's progress to the grade divisions of the school, and instead instruction tried to adjust itself to the varying learning needs of pupils housed together in one classroom, it was possible for the bases for promotion to be changed. The problem of promotion now became the problem of placing each child in a group in which he could do his best learning and make his best adjustment emotionally and socially. Social maturity became as important a promotion criterion as present scholastic achievement. Some schools announced a one-hundred-percent promotion policy which allowed children to move along with their own age groups, except in those cases where it was considered advantageous to their own adjustment to have them transferred to another group.

The objection was raised, of course, that this meant all meaning was removed from the concept of a school grade. To this objection was countered the argument that grades had never had any more uniform meaning than a certain number of years of attendance in school. The results of standardized tests applied to schools in various parts of the country showed that no grades anywhere consisted of pupils who had attained the same standard of achievement and that the average achievement of the same grade differed widely from school to school. A truer description of a child's achievement would therefore be the scores he obtained on standardized tests.

The elimination of the policy of nonpromotion is still rare, however, except in progressive private schools, and very few dull children enter these schools. While many public schools are making a serious attempt to reduce the incidence of nonpromotion, they are

not willing to abandon the policy of non-promotion. Moreover, it is doubtful whether the abandonment of nonpromotion is helpful unless there is a reduction in class size and unless there are changes, too, in the curriculum and in methods of teaching.

Although the problem of nonpromotion is usually discussed in terms of the elementary school, it is just as serious a problem in the high school. In all but a small percentage of American high schools promotion is by subject rather than by grade. A student may fail one or more courses, and he repeats only those courses in which he has failed. In some high schools the incidence of course failure is alarmingly high. Children who never experienced failure in the elementary grades fail courses in high school. One study found that about a third of failing high school pupils had been promoted regularly from grade to grade in the elementary school. Others found that the majority of failing high school students are of average or better intelligence. While the trend in the elementary school is toward practices which reduce the amount of failure, the secondary school has not yet been as determined in the attempt to reduce retardation. Students are known to have repeated the same course four times. There is an especially large proportion of failures in foreign language and mathematics courses. English courses also are failed by many pupils. This high degree of the incidence of pupil retardation in secondary schools has been attributed to such factors as poor methods of teaching, curricular offerings of little interest to present-day youth, and to failure on the part of high school administrators to realize that compulsory education laws are bringing to the high schools large numbers of students of average and below-average intelligence whose needs and interests are markedly differently from those students of the college preparatory group for whom the secondary school so often reserves its major concern. (See CLASSIFICATION OF STUDENTS; ELIMINATION, SECONDARY EDUCATION.)

B.B.F. and W.A.K.

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PROTESTANT EDUCATION. A picture of Protestant education can be seen in three basic institutions—the local church, the home, and the college.

The Local Church. In the local church the Sunday school is the major educational agency. Founded by Robert Raikes in 1780, the Sunday school has become a widely extended agency of religious education for Protestant churches. It covers one session, usually an hour, on Sunday morning or afternoon. The program consists of worship, presentation of missionary and service projects, and a period of a half hour for the study of the lesson for the day in classes running from a dozen in most cases up to the large adult Bible class of several hundreds. The lessons emphasize the study of the Bible and its practical meaning for life. No single set of lessons is used in all schools, although the Improved Uniform Lessons selected by a committee of denominational editors of the International Council of Religious Education is the one series of lessons most widely used. Other lessons are built upon the principle of close gradation by years, usually known as the Closely Graded Lessons, or upon the broader plan of grading which covers a three-year span. These are known as Departmental or Group-Graded lessons. Many elective courses are used. (At the time of preparing this statement a comprehensive program for developing new outlines is under way. This program includes Uniform Lessons, Graded Lessons of several types, and outlines for the home, vacation church schools, weekday church schools, summer camps and small Sunday schools.) In addition to this Sunday session, the Sunday school reaches its members in other ways. Midweek or other meetings of classes for boys and girls and young people are held frequently. Many teachers secure a reasonable amount of home reading and study in connection with their lessons. The cooperation of parents is widely sought as a part of the teaching program itself and a good deal of such joint effort is secured.

Approximately 20,000,000 pupils are en-

rolled in the Sunday schools of the Protestant denominations of the United States and Canada. Upwards of 35,000,000 are enrolled throughout the world. Most of the teachers of these classes are not trained for their work except as they have been enlisted in the leadership education program of the various denominations and inter-church agencies. This teacher training program has been under way for many years and is an important factor in providing better leaders.

Next to the Sunday school, the young people's society is the most widely used type of religious education. There is no uniform name for such groups. They meet either on Sunday evenings or during the week. Organized by Dr. Francis E. Clarke in 1881, this type of work now includes in its membership, according to a recent estimate, about 3,500,000 members in the United States and Canada. In these groups young people conduct their own programs, with only a minimum of adult guidance or none at all. Worship, discussion of topics of both religious and social interest, service projects, and participation in the work of the church make up the program of these organizations. While some such groups are active in the Junior age—nine to twelve—and more reach the early and middle teens, the majority serve those above the high school age.

The Vacation Church School is one of the newer phases of the total program. Beginning about the turn of the century, in 1902, it has become an established part of the program. Sessions are held in the summer vacation for periods of two to six weeks during the forenoons of five days each week. Such schools make use of church buildings and the time of pupils and teachers which otherwise would be lost. The program includes many features of the Sunday school, although special stress is given to projects such as handwork, visitations and other activities. While adequate statistics are difficult to secure, it is estimated that about 30,000 such schools bring together over 2,000,000 pupils each summer. These are nearly all under fifteen years of age, with the larger number being under twelve.

Weekday religious education is another movement within the total field of Protestant education. It uses the weekday time of children during the regular school year, usually

in some relationship to the public school. In some cases classes are held in the churches of the denominations to which the children belong, with hours adjusted to the public school schedule. In other cases the pupils leave the school buildings to go to some building nearby where the Protestant churches cooperate in providing leadership. In still other cases, in harmony with local desires and conditions, classes are held in the school buildings. In any of these plans the work may be done either on a "released time" basis, with pupils excused from certain parts of the regular school program, or after the school program has been finished. This movement began in 1913 and now is estimated to be in operation in well over 500 communities, with an average attendance of about 400,000. These come from elementary and secondary school grades, with the former in the majority. (SEE RELIGION AND PUBLIC EDUCATION.)

The summer camp and conference for boys and girls and young people has been called the youngest and most rapidly growing agency in the family of religious education. The first of these was held slightly over twenty-five years ago. They are operated by national denominational boards, by the International Council of Religious Education, by state and city councils, and by local churches. Their purpose is to motivate and train carefully selected young people from the churches for carrying forward the ideals and work of the churches. There are now some hundreds of such enterprises in operation each summer, with several hundred thousand young people in attendance.

Adult education is conceived of as being carried out not only in Adult Sunday school classes, but through women's organizations, men's organizations and the church program as a whole, with increasing emphasis upon the educational use of preaching and public worship.

The parochial school, so widely used in Catholic churches, is not generally in use among Protestants. On the whole, Protestant churches depend upon the public schools for general education and the agencies discussed in this article for religious education. Some churches, particularly some Lutheran groups, have introduced parochial schools. There were 400 Lutheran elementary schools in

PROTESTANT EDUCATION

1840. In 1940 approximately 3,000 such schools were under the direction of the Synodical Conference of the Lutheran Church.

The Home. Protestant churches recognize that the most potent religious influence, either positively or negatively, is inevitably exerted by the home. They are just now discovering that much more could be done to make this influence of high educational value. A movement is under way to enlist religiously-minded parents as teachers of religion for their own children in a concerted effort such as has not been undertaken before. This effort will take two main directions: one, the use of the everyday experience of living in the home as opportunities for Christian character building and the development of Christian ideas, attitudes and practices; and the other, the use of special times for religious guidance through family worship, festival celebrations, and family discussions of everyday problems. Classes to train parents for this sort of teaching are being promoted, national emphasis is being given to the importance of family life, and materials to guide and help families in these ways are being prepared. While this movement is but in its infancy, many believe it is destined to be the most significant movement in Protestant religious education yet undertaken. It is intended not to supplant, but to enrich and reinforce the other agencies of religious education at work.

The College. The first schools in the New World were opened under church control. Influential in early primary education, the church also established secondary schools. From that point the churches began to establish colleges. The church in America has been a prolific mother of schools.

Before the Civil War there were 182 permanent colleges and universities founded. Of these about 146 were related to Protestant churches and 12 to the Roman Catholic Church. Many more were established between that time and the end of the century, but many had to close. However, many remain. Today of the 780 universities, colleges and junior colleges related to the churches in the United States, 553 are Protestant. Nearly half of the students in American colleges and universities attend church-related colleges. The church-related colleges have conserved the values of religion in education.

Credits in Bible, religion, and religious education are required for graduation in 82.2 per cent of these institutions; these colleges insist that the study of religion, as well as the practice of religion, has an important place in an educational program, since religion is necessary to enable one to face the problems of life. These colleges are active in preparing Christian leaders for all walks of life, including the schools, government, business, industry, and other vocations and professions, as well as for the ministry. In carrying out this broad purpose the churches also have extensive programs for their own young people attending state and other non-church universities.

Organizationally, the above activities are promoted and directed by national denominational boards of Christian education for the work in the church and in the home, and by boards or departments of higher education for the college level. The International Council of Religious Education represents the first of these and also works through state, city and county councils of religious education. The college boards work together through the Council of Church Boards of Education. (See also BAPTISTS, EDUCATIONAL WORK OF; FRIENDS, EDUCATIONAL WORK OF THE SOCIETY OF; LUTHERANS, EDUCATIONAL WORK OF; and METHODISTS, EDUCATIONAL WORK OF.) P.R.H.

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PSYCHIATRIC CLINIC — See CHILD GUIDANCE CLINIC.

PSYCHOANALYSIS—See PSYCHOLOGY, SCHOOLS OF.

PSYCHOANALYSIS IN SCHOOLS. Freud made few references to the educational implications of psychoanalysis, but the theories of progressive education and the principles of psychoanalysis are in accord. Pestalozzi, Froebel, and Dewey were concerned, as was Freud, with the psychological growth of children.

It was Freud's daughter, Anna, of Vienna and later of London, a teacher as well as an analyst, who began the direct application of psychoanalysis to children. Anna Freud and Melanie Klein of Berlin, later of London, did extensive therapeutic work with young children. They gave lectures and seminars for lay and professional groups at the institutes and child centers. Many American universities provide mental health service to students by psychoanalytically oriented staffs.

Freudian terms are not applied to the modern methods of teaching but many of the principles implicit in psychoanalysis are accepted in modern education. More often the terms are strenuously resisted by teachers though the principles are accepted and rewarded. Thus, teachers and educators speak of a child's need to find an outlet for emotional expression and of the school's function to direct these impulses into creative channels; they do not use such terms as *id* or *sublimation*. Many educators realize that the teacher assumes the role of parent in the child's eyes and that because of specific child-parent relationship some students will react more favorably to women teachers and others to men teachers; but father or mother surrogate and transference are not the vocabulary they use to describe this. Other Freudian terms—repression Oedipus complex, unconscious—have filtered into the scientific and popular vocabulary.

Both analysts and educators are concerned with the problem of motivation. The popular use of mental tests in schools reveals that high I.Q. is not the single component of learning. The bright pupil often functions below his ability and has adjustment difficulties. The factor of emotional motivation and its effect on energizing, depressing, or

scattering the I.Q. have to be understood in the complete picture of achievement. Education has stressed conscious motivation, and the limitations of this partial analysis have led to an interest in Freud's basic principle of unconscious motivation as another facet in the learning problem. There is a consistency in the tendency of both modern educators and psychoanalysts to view the child as an organism; not to be divided into emotional and intellectual compartments. Both appreciate that the early years of life are formative of personality structure. The acceptance of this fact is indicated by the growth of the nursery school and by the use of psychologically trained social workers and other public agencies to cooperate with the home in aiding the young child. (See PSYCHOLOGY, SCHOOLS OF.) J.F.B.-2

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PSYCHOGRAPH—See PROFILE GRAPH.

PSYCHOLOGY OF SCHOOL SUBJECTS. The attempt to reduce the steps and factors involved in school learning to the basic processes, abilities, traits and environmental influences has produced a field of study known as the *psychology of school subjects*. The implications of research in the psychology of school subjects suggest changes in methods of teaching, in the curriculum, and in teacher education. Books on the psychology of school subjects deal with a large proportion of the problems discussed in books on educational psychology, the difference being that laws of learning and principles of evaluation are discussed directly in terms of their application to the various school subjects taken up in turn one after the other. It is natural, therefore, that as laws of learning are modified, revised and extended, that the psychology of school subjects becomes similarly changed. When educational psychology confined the principles of learning to Thorndike's famous laws of readiness, exercise, and effect, the major portion of books on the psychology of school subjects dealt with the application of these laws to arithmetic, reading, writing, history, etc. At present, the psychology of school subjects takes more and broader factors into account.

Subjects are discussed in terms of the motivation and maturation of the learner, in terms of the individual differences in these factors in children of the same age, and in terms of the meaningfulness of the subject-matter.

In many instances, specific learning experiments resulted in an immediate change in subject-matter teaching. When, for example, experiments disclosed that we perceive whole words as quickly as the separate letters making up these words, it was soon suggested that the child begin his study of reading by learning word forms instead of the alphabet. The contrast between a "psychological" and a "logical" approach was made still more specific by conclusions drawn from experimental studies of thinking, concept formation, and learning. The application of these conclusions led to such educational changes as the elimination of logical definitions of a peninsula, latitude, etc., from the introduction to geography, and the discarding from arithmetic textbooks of abstruse, unusual problems that have no counterpart in everyday life. As child psychology in turn became empirical, there was found in the facts and laws of mental development justification for further innovations such as the substitution of more natural writing movements for the earlier kind of training based on loops, whorls, and other formal elements of handwriting.

As the various school subjects themselves became the point of departure for studies of a psychological nature, the measurement of progress and of the attainment of the objectives in each field began to take on considerable importance. Techniques were devised for the construction of objective tests and scales in the various school subjects. This manner of presenting results quantitatively, along with the analytical viewpoint, led to a clearer differentiation of the skills needed within any field. For example, it was found that the instructional value of representative drawing is much less than that of schematic drawing in nature study, and that good oral reading is no guarantee that the child will show superior ability in understanding the sense of paragraphs. Techniques were also developed for determining the difficulty or maturity levels of elementary facts and skills requisite in arithmetic, algebra, geometry and other subjects. Empirical studies of errors commonly made by pupils furnished a con-

crete basis for the apportioning of drill periods, and when linked with the known facts of individual differences suggested modifications of approach to subject matter for bright and dull pupils.

Changing emphases in school aims have brought new problems with which the psychology of school subjects must concern itself. Emphasis on the need for understanding what is learned and on the ability to use known facts to solve new problems has, for example, resulted in a scrutiny of the verbal material presented to children and in suggestions as to how such material can be made more comprehensible. Emphasis on character development has led to an evaluation of teaching techniques not only in terms of the amount of subject-matter acquired but also in terms of the kind of personalities developed during the process. It is thus seen that though a fairly extensive collection of data already exists with respect to the psychology of reading, spelling, arithmetic, writing, drawing, science, literature, and language study, many changes may be expected as principles of learning and school aims are extended and clarified.

W.D.C. and B.B.F.

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PSYCHOLOGY, SCHOOLS OF. While the term *Schule der Psychologie* (Schools of Psychology) was not uncommon in German psychological writings of the '80's in referring to a group of psychologists—usually centered in some one university—who differed from the orthodox teachings of Wilhelm Wundt, in the United States "schools" were of no significance and were rarely mentioned before the second decade of the present century. It is not that American psychologists were in major agreement with one another or with Wundt, or that psychology in this country had not yet fully matured for schisms. Rather, the main reason appears to

be that, with the exception of E. B. Titchener, most early American psychologists of note lacked the partisanship conducive to the founding of rigid schools or systems. William James, for instance, whose lone contribution to psychology is well on a par with that of a complete school, was often too tolerant and tentative, too broad and dynamic, in general too much of an individual, and in the end too critical and skeptical of psychology to uphold any set frame of its principles. John Dewey, whose 1896 paper on the "Reflex Arc in Psychology" is still a classic of psychological theory, early transcended the bounds of professional psychology; and G. Stanley Hall, the first president of the American Psychological Association, was also the president of Clark University, a position that did not remove him from psychology but was instrumental in making his writings, to use his own terminology, "synthetic" rather than systematic. James R. Angell, till recently president of Yale University, had indeed formulated the fundamentals of a system of functional psychology, but was too busy and too unconstricted to foster and champion it. Finally, at Columbia, J. McKeen Cattell and later E. L. Thorndike were developing—contrary to the doctrines of Wundt—a psychology of capacity and individual differences. But Cattell, Wundt's first assistant, unlike Wundt, was always wary of philosophizing and systematizing, and Thorndike, the youngest of the American pioneers, was too busy experimenting. Thorndike was, and still is, much interested in readily testable and verifiable specific theories, but apparently has little time or use for ubiquitous systems.

In the first years of the second decade, however, the scene of American systematic psychology began changing rapidly. Nearly all at once a variety of schools sprang up full-fledged and psychologists flew to the colors, taking sides and participating in heated controversies. Behaviorism usually traces its origin to Watson's paper, "Psychology as a Behaviorist Sees It," in 1913 and even farther back to his lectures before a seminar at Columbia University in 1912. Wertheimer's famous article on perception of movement and gestalt psychology came out in 1912, in German. McDougall's "Social Psychology" was published in 1908 and his "Psychology, the Science of Behavior" in 1912. Psy-

choanalysis was founded earlier, but was not really offered to American psychology as a possible school till Freud, at the invitation of Hall, had crossed the ocean to deliver a series of lectures at Clark University in 1909. Functional psychology, as already noted, had been existent for years, awaiting only advocacy and articulation, while all that the traditional structuralism of Titchener needed to arouse it from its official self-complacency, was a vocal opposition. The register of schools of psychology was thus filled in a very short time, and basically only few changes have occurred in it since.

The meaning and scope of a "school of psychology" may perhaps best be illustrated by a comparison with a school in philosophy and in art, two other disciplines in which schools play prominent roles. In philosophy a school is of course primarily a system of ideas, a more or less orderly arrangement of basic concepts and first principles. In art it is rather a system of skills and practices, a more or less consistent way of doing things. In psychology it is both. Schools of psychology and psychologists of various schools differ from one another both in ways of thinking (concepts and general principles) and ways of doing (special methods and techniques in the clinic and laboratory). The specific practices of psychologists often indeed have been the main immediate determinants of their theories, as witness the close relation between a certain method of studying animals and behaviorism, a specific technique of diagnosing neuroses and psychoanalysis, a process of investigating sensations and structuralism, a method of studying perception and gestalt psychology. But general principles also have had their effect, and one may attempt a connection between certain schools of psychology and certain schools of philosophy, as, for example, between behaviorism and materialism, functionalism and pragmatism. One may also argue that psychoanalysis is a middle-class revolt against social and religious taboos, while structuralism is an "ivory-tower" rationalization for detaching oneself from social issues. It is also possible in some cases to trace the rise of a school to the partisan personality of its founder and the loyalty of his followers.

Another recurrent question is why, of all sciences, it is psychology that is most split by

schools. The answer here must be sought not so much in the youth of the field as in its particular balance of facts and interpretations and its intermediate buffer position in the sciences. In mathematics, physics, or biology there are so many settled facts that basic differences in interpretations occur only in some generalized aspects—vitalism *versus* mechanism, corpuscular *versus* wave theory of light, Euclidean *versus* non-Euclidean geometry—which affect but little the diagnosis and solution of the average problems with which their scientists are confronted. In the social sciences, on the other hand, so many interpretations are possible that factual frameworks are hard to set, and their schools do not have the same systematic import nor are they so limited in number as in psychology. Systems of psychology could thus be expected to diminish as experimental evidence accumulates, a supposition that finds support in the reconciliation of some schools and in the diminishing importance of others. However, psychologists have also shown strong tendencies toward embarking upon new fields in which theoretical interplays are rampant; there has of late been some general fashion for conceptualization. In all, the future of psychology as a “science with schools” appears to depend upon the opposing factors of, first, how close it stays to an experimental laboratory science, and, second, how near it gets to a social life study. The chances are that psychology will hold on to both.

Structural Psychology (also **EXISTENTIAL PSYCHOLOGY** and **INTROSPECTIVE PSYCHOLOGY**). A school of psychology, most precisely formulated by E. B. Titchener (1867-1927) which traces its origin to the experiments and writings of William Wundt. In a large measure it was the “official” academic psychology of the last quarter of the nineteenth and the first decade of the present century. Titchener wrote in 1898 that “The subject matter of psychology is the morphology of the mind—what is there and in what Quantity, not what [it] is there for.” Mind is synonymous with conscious mind, and the only difference between mind and consciousness is that consciousness is “the sum-total of mental processes occurring *now*, at any given ‘present’ time” and mind is “the sum-total of mental processes occurring in the lifetime of an individual.” Titchener’s “quantity of

mind” does not signify an interest in capacity and group and individual differences, since structuralists consider the concern of psychology to be only the “generalized, adult, human, normal mind.” Quantity of mind merely means an introspective scaling of the degrees of intensity of the elements of consciousness. Titchener’s contention that psychology should not study “what the mind is for” intended to keep out “applied” and “functional” psychology and indeed any consideration of values. Another name for structural psychology is existential psychology, a name it derives from its endeavor to study consciousness, experiences, as facts or *existences* regardless of their function, use, or value. Science, according to Titchener, deals with facts and not with values. Values are non-scientific or, better, extra-scientific. Because of the alleged nature of its subject matter, psychology even more than other sciences must guard against the intrusion of values.

The only method recognized by structural psychology is subjective observation or introspection, looking into one’s own internal experiences. This introspection, furthermore, must be specially “trained.” An untrained subjective observer is likely to lack scientific detachment, attend to the elaboration of his consciousness rather than to its immediate impression, study the external physical object or event rather than its internal psychological content (stimulus error). Trained introspection is not the “psychologizing” of a Dostoyevsky hero, nor the ratiocination of the philosopher or inventor, nor the musing of the artist or lover, nor even the common sense observation of the average man. It is a technical, exact, and specifically psychological method—acquired through long and vigorous training in the laboratory—which alone is capable of unraveling the real structure and laws of mind and consciousness. It may be used in *analysis* answering the question of “what” by reducing states of consciousness to their basic elements, and in *synthesis* answering the question of “how” by showing how these elements are combined and arranged. These basic elements—the elements of the mind discovered by trained introspection—are, according to Titchener (some structuralists do not agree completely), *sensations*, *images*, and *affections*. Images are “textually” different from sensations, being “more filmy,

more transparent, more vaporous," but like sensations they possess four main attributes: quality, intensity, duration, and clearness. Affections (the characteristic elements in emotion) lack the attribute of clearness. There are also special attributes such as extensity, volume, and insistence; and each attribute may further vary in kind and magnitude. All mental life is thus a kaleidoscope of the permutations, combinations, and fusions of elements, attributes, and their variations.

The early criticisms of structural psychology by William James, Henri Bergson, and Wilhelm Dilthey dented it but little. At present, however, its influence is no doubt small, even though because of inertia or the lack of other suitable material a good portion of it is still sedulously taught to our undergraduates. Current objections to structuralism are often not much different from those of old except that they are now more widely recognized. Consciousness, it is argued, is not a discrete content that is readily suspended and pegged, but a continuing operation that quickly effervesces; it is an activity leading to practical consequences rather than a sheer parallel state of experience (functionalists). Mental life is an organic whole that cannot be broken up into fortuitous component elements, and the elements of trained introspection are only laboratory artifacts (gestaltists). Of what value is a detached analysis of consciousness to the individual? Is not a psychology that leaves the individual and his problems out of consideration but a sterile diversion (clinical approach)? Introspection is unreliable and unfit as a method for a science, and behavior rather than consciousness should be the subject matter of psychology (behaviorists). Taken together, these criticisms reduce impressively the significance of Titchener's system. Historically, however, structural psychology did play a very significant role. It freed psychology from the paternity of philosophy and of purely armchair speculation. It created a consciousness of scientific methodology, of exact, technical, and unbiased observation, a mind-set which reached out to and pervaded the cognate fields of education and the social sciences.

Functional Psychology. A school of psychology which traces its beginning to William James, John Dewey, and James Angell, but finds considerable support in the works

of most early American psychologists such as Hall, Münsterberger, Baldwin, Ladd, and Cattell. It is also easily traceable to the influence of Charles Darwin. Functionalism is a rather open and loosely knit system, and a good number of contemporary unattached "middle-of-the-road," "reaction," and "dynamic" psychologists may well be gathered under its wing. It is also the most "American" of schools in origin, inspiration, and adherence. Its basic contention derives from the view that consciousness is adaptive in character, is an activity or function of the organism leading to practical consequences rather than being a mere structure. Psychology is therefore the study of the operation of mental processes, the conditions of their occurrence, and the utility or consequence of their functioning. Mental functions are psychophysical wholes involving an inseparable unity of the awareness of the act and the act itself. Psychology may even be considered the study of all the activities of the organism or the individual, inasmuch as they all become sometimes, if not always, psychophysical. Both introspection and objective observation are regarded as valid psychological methods, except that the former must not be a "trained" microscopic dissection and tail-chasing retrospection, but merely an accurate common sense observation, and objective observation must whenever possible be used as a check upon introspection. It is further recognized that complete experimental control of mental functions is often impossible and that other methods, particularly the study of social products—art, literature, language, invention, social and political institutions—may shed considerable light upon human mentality.

Functional psychology was clearly interested in studying mental life in its natural setting. In contrast to structuralism it deliberately concerned itself with values and with the application of psychology. Dewey's address in 1900, "Psychology and Social Practice," given as president of the American Psychological Association, was plainly a plea for, and a platform of, educational psychology. Applied psychology, industrial, social, and abnormal psychology, vocational guidance, tests and measurements—all sorts of problems in human growth, development, and learning—came in its wake or even preceded it. Indeed, there was hardly a problem of

practical human affairs which functional psychology did not claim as its rightful domain. It greatly expanded the scope of psychology, shifting more and more its emphasis from the subjective to the objective and from knowledge for its own sake to knowledge for use and control. It was little dismayed by the accusation that psychology was thus becoming more a technology than a "pure" science. On the other hand, functionalism was wary of radical changes, of elaborate deductive theories, and of cure-all broad generalizations, such as may be found in gestalt psychology, psychoanalysis, and behaviorism. It preferred slow, step-by-step, perhaps somewhat indiscriminate, cumulations of data, and limited, simple—one might say glamorless—conclusions.

In a large sense, functional psychology is still the most characteristic American psychology. Indeed, it was functionalism that first began to emphasize behavior and dynamics, two basic principles of all contemporary psychological systems, and called attention to motivation and goal-seeking, which are other fundamental concepts in current psychological thought.

Behaviorism. A school of psychology, associated primarily with the teachings of John B. Watson, which in many ways transcended the bounds of a psychological school to become a general philosophy. Behaviorism, like functionalism, is largely an American product, except that it borrowed its distinctive method and chief explanatory principle, the conditioned reflex, from Russian reflexology. The basic contention of behaviorists is that only objectively observable behavior from grossly motor to minute physiological reaction can be the subject matter of psychology and of any other human science, and that introspection is a futile or completely impossible and illusory method of observation. When an individual introspects he merely behaves in a certain fashion, and his behavior, mostly verbal, constitutes only a "verbal report." This verbal report is solely a set of responses; it does not stand for anything beyond itself, and does not reveal any unique mode of existence, or consciousness. Consciousness is thus denied existence, and the traditional categories of psychology—sensations, images, perceptions,

feelings, and the like—are held to have the same status as ghosts, souls, and animal spirits. This is the more radical view, the one proclaimed by Watson himself. Sometimes, however, consciousness is granted existence, but it is claimed that it is not subject to scientific investigation and that it is no causative, being a mere epiphenomenon, and that it therefore has no place in science, which deals with cause and effect. Mental categories, according to this argument, would be classed not under mythology but under literary rather than scientific psychology, to use Santayana's expression. At any rate, behaviorists agree that a science of psychology may be built only upon behavior and objective observation.

The skeleton of the behaviorist's system is rather simple. All behavior may be divided into three classes: motor, mostly manual; laryngeal or verbal, including both vocal and subvocal speech; and visceral. Most motor behavior is explicit, or readily observable, but a great deal of visceral and laryngeal behavior is implicit, not readily observable by the naked eye or ear or even by our present recording instruments. Behavior in which profound visceral changes predominate constitutes emotion, and the reverberations and modifications of these changes are at the base of all affective and esthetic activities. Thinking is a laryngeal subvocal habit—submanual in deaf-mutes—built up genetically through short-circuiting and gradual social suppression of early overt, or explicit, speech. The so-called unconscious is to Watson nothing more than the un verbalized reactions of our very early preverbal childhood as well as our implicit and unnamed visceral reactions, while memory is defined as a verbal reinstatement of habits. The conditioned reflex is the unit of habit formation, the agent through which the few congenital reflexes and native emotions (love, fear, and rage, according to Watson, though others dispute this list) of the infant are gradually transformed, by permutations, eliminations, and combinations, into the multitude of organized activities of the adult. The general aim of psychology is the prediction and control of behavior through the discovery of all the relationships between measurable stimuli and objectively observable responses, so that given a stimulus the response may be predicted, and

needing a response the appropriate stimulus may be found.

With the possible exception of psychoanalysis, behaviorism is the psychology that has had the widest popular appeal. Its appeal was indeed more than only popular, as witness the favorable attention which it has received from such sophisticated philosophers as Russell, Santayana, and Holt, and the interest shown in it by a good number of exact scientists other than psychologists. The reasons for this popularity were many. One might mention the simplicity of the system, its radicalism, its possible wide application to fields other than that of psychology, its seeming strict "scientificness," and above all the ambitious program of changing human nature which it set forth. The idea that man is essentially a machine may have been old and put forward many times, but the notion that this machine with all its complexities may be simply and scientifically studied and controlled in the laboratory as an aggregate of motor, visceral, and laryngeal gadgets, unhampered by the intrusion of such factors as difficult to control as mind and consciousness, was new and revolutionary. Particularly did this notion take hold because it was not merely a philosophical assertion but was seemingly backed by controlled methods and rigid experiments. Watson's famous assertion that given any healthy baby whatsoever, and his (Watson's) own specified world to bring it up in he could train it to become any type of specialist selected—"doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors" was certainly a bold challenge to all that man knew of man. No wonder that a newspaper reviewer of *Behaviorism* hailed it as "perhaps . . . the most important book ever written. One stands for an instant blinded with a great hope."

But that was 1924. In 1943 few accord behaviorism such a lofty status, and one hears of its decline. It should be said, however, that in a way this decline is more apparent than real, that it is often more a loss of its individuality as a school than a lack of effect as a movement, and that the decline is but little due to actual experimental and logical disproof. Recent results on the effect of

maturating, the variability of human conditioning, and some philosophical weakness of behaviorism may well suggest modifications in the system, but have not shaken its foundations. The main reasons for the recession of behaviorism are probably the fact that it claimed too much, and that its complete success depends upon an extensive and untrammelled program of experimentation and a highly developed system of mechanical recordings. A complete control of the conditioning of infants and a total instrumental recording of man's behavior may be suitable material for a Huxley novel (*Brave New World*), but in actual practice is hardly feasible. The present status of behaviorism is not that of a school discredited by logic and the results of experimentation but is that of an unfulfilled hope destined to remain unfilled as long as mankind does not institute the conditions necessary for the wide functioning of its principles.

Conditioning. As a basic principle in behaviorism and also as a principle of learning which can be held apart from other hypotheses of the behavioristic school, *conditioning* deserves exposition on its own account. Since it has claimed to be the sole principle by which organisms are changed from what they are at birth to what they are in their maturity, it forms almost a school in itself. Conditioning is a form of learning or training which follows in essence the process described in the classical experiments on the salivation of dogs performed by the noted Russian physiologist and Nobel prize winner, I. P. Pavlov. In Pavlov's first experiments, the ringing of a bell came to elicit secretion of saliva in dogs, when the bell had been sounded a number of times before the animals were fed. Generalizing, it meant that a stimulus which was originally inadequate to bring about a certain response became adequate merely by being combined one or more times with the adequate stimulus of the response. The originally inadequate stimulus, the ringing of the bell, was named the *conditioned stimulus*; the adequate stimulus, the feeding of the dog, was called the *unconditioned stimulus*; the secretion of saliva in response to the actual feeding was termed the *unconditioned response*; and the secretion of saliva in response to the originally inadequate but later conditioned stimulus, the ring-

ing of the bell, came to be known as the *conditioned response*. Pavlov found that any stimulus that affects the animal in some way may become conditioned to the secretion of saliva. Other experimenters have since demonstrated that, besides salivation, nearly any other response may become similarly linked to a conditioned stimulus, thus establishing the universality of the phenomenon.

Conditioning is best effected when the conditioned stimulus either precedes by a few seconds or is applied at the same time with the unconditioned stimulus, for example, ringing the bell a little before or simultaneously with the feeding of the animals. Fair results also have been obtained when the conditioned stimulus is continued for a few minutes before the unconditioned stimulus begins to act, or even when the unconditioned stimulus begins shortly after the conditioned stimulus has stopped (feeding the dog after the bell has rung for a few minutes or shortly after the bell has ceased ringing). On the other hand, backward conditioning (ringing the bell after the dog stops eating) is extremely difficult, although not altogether impossible. As a rule, a conditioned response will diminish in magnitude and finally disappear, if the conditioned stimulus is presented repeatedly without the unconditioned stimulus (bell without food). This is known as *extinction*. An extinguished conditioned response regains some of its original strength after a lapse of time. This is called *spontaneous recovery*. A new stimulus, such as the flashing of a light, may acquire conditioning characteristics (e.g., ability to elicit salivation) by being combined with an already conditioned stimulus (ringing a bell). This is *conditioning of the second order*. Conditioned responses of the third, fourth, and even fifth order also have been claimed by some investigators. Conditioned responses are very generalized in their initial stage of training (the dog will secrete saliva also in response to other sounds), but in time, after considerable experimentation, the responses become very specific (e.g., the dogs are aroused by a bell of a particular timbre and intensity). Animals that have been subjected to strenuous training in conditioning, involving prolonged delays of feeding and subtle discrimination of tasks, may begin to exhibit functional disturbances or develop *experimental neuroses*.

As a general concept, conditioning is similar in many ways to the old doctrines of "association of ideas," the doctrine of Aristotle and of the eighteenth-century British associationists, and of nearly all nineteenth-century and early twentieth-century psychologists and educators. However, the specific differences between conditioning and association are equally striking. Conditioning does not deal with subjective ideas and images but with objectively and accurately measurable stimuli and responses. It has established a good number of clear-cut quantitative generalizations and has supplied a variety of testable hypotheses for psychological and social and even some biological problems. Pavlov's findings on dogs have in the main been confirmed by experiments on infants a few days old and on one-celled animals, while general principles of conditioning have been claimed by careful investigators to be operative in such diverse acts as memorizing stanzas of poetry and acquiring immunity to a disease, acquiring racial prejudices and learning a foreign language, learning to typewrite and fearing darkness, liking some particular music and forming some specific phobia.

The number of systematic contemporary texts that use conditioning as the chief explanatory concept is considerable. One might mention Allport's *Social Psychology*, Burnham's *The Normal Mind*, Guthrie's *The Psychology of Human Conflict*, Sandiford's *Educational Psychology*, Shaffer's *The Psychology of Adjustment*, and Watson's *Behaviorism*, and *Psychological Care of Infant and Child*.

The chief difficulty in accepting conditioning as the universal principle of human modifiability is the extreme lability of the conditioning of adult human subjects under normal laboratory setups. In the past forty years about fifteen hundred separate experiments on conditioning have been performed, but clear-cut and consistent results have been obtained only with animals and, to some extent, with young children. Adult human conditioning has not, as a rule, met with great success, since it requires special setups and very special and limited responses and techniques, and even then yields heterogenous and, at times, fragmentary data. The hopes of early behaviorists that conditioning would supplant verbal methods in testing human capacity and

effecting human modifiability have certainly not materialized. On the contrary, man's verbal equipment—and whatever else there may be to "mind"—seems to dominate the conditioning of his bodily activities. Attitudes, mental sets, interests, and situational arrangements appear to determine human conditioning more than do mere quantitative stimuli relationships. This does not mean that conditioning is insignificant genetically in shaping personality, nor that it is unimportant in a vast number of adult life situations, and not even that our verbal equipment itself may not ultimately proceed in accordance with some laws of conditioning. All it intends to stress is that, so far, all the complexities of human nature and conduct cannot be gauged adequately nor controlled by the known facts and techniques of conditioning, and that in our present state of knowledge other methods are often more appropriate.

Gestalt Psychology. A school of psychology founded by the German psychologists Max Wertheimer (1880-), Kurt Koffka (1886-1941), and Wolfgang Kohler (1887-) which has influenced considerably all contemporary psychological thought. The term *gestalt* usually has been translated into English as *configuration*—sometimes also pattern, form, shape, whole phenomenon—but of late the German word has been more prevalent both as adjective and noun. The basic tenet of gestalt psychology is that all mental life—and for that matter all existence—consists of segregated organized wholes, or *Gestalten*, possessing their own unitary structure and governed by their own intrinsic laws. The structure of *Gestalten* is such that they may not be analyzed or decomposed into component parts or elements—sensations, elementary feelings, relations, reflex arcs. *Gestalten*, or wholes, are not only more than the sums of their parts, but it is the wholes, or *Gestalten*, which are in all respects—psychologically, logically, and chronologically—primary to the parts and determine the parts rather than vice versa. Some of the laws of *Gestalten* are said to be (1) *transposability*, the complete carry-over of a gestalt from one situation to another, such as the equivalence of a melody in different keys; (2) *closure*, the tendency of a gestalt, if incomplete, to complete itself, as in the alleged greater persistence of an interrupted task or impression;

(3) *Prägnanz*, the tendency of a gestalt to assume its best form to become more typically what it is; and (4) *Figure and Ground* as illustrated by the sharpening of an experience after a lapse of time, and the separation of a gestalt into a more definite and less definite aspect, as exemplified in most perception—the perception of a tune and its accompaniment, for instance.

The initial work and thought of gestalt psychology was in the field of perception, but in time it extended to learning and memory, growth and development, thinking and feeling, and even intelligence and personality. In learning and memory, gestalt psychologists argue against the use of meaningless "unstructured" tasks, the concept of trial-and-error, the laws of use, disuse, and effect, and connectionism in general, while they emphasize insight, perceptual factors, total organization and understanding. Learning is said to be more perceiving and patterning than doing and drilling. Retention and forgetting are not just "stamping in" and "stamping out" of disparate movements and sounds, but meaningful "structured" reorganization of total phenomena and fields. In growth and development, gestalt psychology leans heavily toward heredity and maturation as against environment and learning, and also stresses orderly individuation, or the organized emergence of individual reactions from a total organismic background *versus* integration as a mere combining and chaining of reflexes and acts. In intelligence and personality, qualitative approaches are favored and unique central characteristics rather than sums of scores and traits are upheld. In all, the fundamental concepts of the gestalt and its laws are never lost sight of and always put forth freely as explanatory principles of all mental life.

Gestalt psychology has been criticized for the vagueness of its concepts and the extreme generality of its stated laws. To be sure, its generalizations are at best only qualitative and perhaps of little specific predictive value. Still, adherents of gestalt psychology point out that some of its basic hypotheses, even in such fields as neural organization and biological development, have been partly confirmed by some of the best and most exact experimentation (Lashley, Coghill, Weiss), and that in concrete human situations pure quantita-

tive laws are of little aid and often no more than mere abstractions. Sometimes it has also been said that gestalt psychology takes mental life out of the realm of science, since science can deal only with repeated events, and gestalt psychology insists upon the uniqueness of mental phenomena. The answer here would be that the point is not what mental life should be in order to conform to the framework of other sciences, but what it actually is. If it cannot be accommodated to existing scientific methodologies, it must seek and build a methodology of its own. Finally, it is frequently claimed that gestalt psychology suffers from an overemphasis of one aspect of experience—in itself as old as Anaxagoras and Aristotle—and a neglect of others, that it has magnified and inflated this one aspect by continuous repetition into a whole philosophy and world-view. In view of the fact that gestalt psychologists base their theories chiefly upon studies from their own institutes and laboratories, and are little familiar with or neglect the vast research of American laboratories, which often fail to confirm gestalt results, this criticism has a particular cogency. In all, it seems fair to state that, while gestalt psychology brought in fresh orientations and new positive knowledge, its chief contributions to psychology may still be said to be that of unmasking the shortcomings of other psychologies and of “unsolving” a number of problems that were thought to have been solved. It has shown that even the simplest psychological tasks are not so simple as the simplifying psychologists thought them to be.

Psychoanalysis. As a school of psychology, psychoanalysis occupies a unique position, differing distinctly from all other major psychological schools. The schools we have considered are all academic, born in the university laboratory, and fostered by experiments, tests, and statistics. But psychoanalysis was for a long time kept out of academic halls, and even now its recognition is often unofficial. Its cradle was the clinic, its subject matter the mentally sick and distorted. Psychoanalysis seems to care little, if at all, for traditional testing and experimenting. It claims its own methodology and its own criterion of determining evidence. It argues that all other psychologies are, by comparison with it, abstract, impersonal, and intellectualistic, and deal only with fragmentary, delu-

sive, and by themselves unrelated surface phenomena; while psychoanalysis is a “depth psychology” delving beneath and beyond, into the real roots and springs of human action. It is the true psychology of feelings and desires and the only one which unveils the psychic or mental causes of all our activities. The methodology of psychoanalysis as a study of the individual is hard to class with other psychological methods. It certainly is not introspection, or subjective observation of consciousness, not only because consciousness is, according to psychoanalysis, only a very small section of the mind, but also because typically the psychoanalyst observes others rather than himself. On the other hand, it is difficult to regard this methodology as objective observation both because “objective” implies a checking of results obtained by different observers and by the same observer at different times, and because the analysts so often supplement their direct observation by a large amount of inference. It has been said that psychoanalysis uses an essentially rational method to probe the irrational nature of man. In some way, psychoanalytic methodology is related to that of German *Verstehungs-psychologie* (understanding psychology) in which the understanding of an event is said to involve all the powers of the mind, the rational and the appreciative, and to transcend the mere strict logic of scientific evidence. At any rate, the methodology of psychoanalysis has been its main barrier in academic circles and the chief source for its criticism.

In a broad systematic sense, the chief tenet of psychoanalysis is the doctrine of unconscious psychic motivation, but Freud himself laid down three minimum fundamentals: the unconscious mind, repression and resistance, infantile sexuality and the Oedipus complex. By the unconscious mind is meant the existence within the individual of mental or psychic processes—ideas, wishes, strivings—which are neither in the individual's immediate awareness nor may be normally recalled at will, but which constitute the largest portion of his mind and the motivating source of his action. Besides the unconscious there are a foreconscious, or preconscious, mind of readily recallable psychic processes, and a conscious mind of immediate awareness. Since 1923 there was also postulated by Freud

a topographical division of personality into the *Id*, the reservoir of unconscious instinctual impulses and passions; the *Ego*, a transformation of part of the *Id* by external reality, and a storehouse of perception which is, however, partly unconscious; and a *Super-Ego*, an inhibiting parental and social modification of the *Ego* corresponding to the popular "conscience". The theory of repression maintains that the unconscious mind is formed largely (part of it is innate) from conscious desires repressed by the conscious *Ego* while the doctrine of resistance holds that the unconscious part of the *Ego* resists the return into consciousness of the repressed desires. "Sexuality"—or *Libido*—in psychoanalysis is a broad term which covers everything that colloquially is called "love" or "affection," but since this love or affection presumably possesses the same characteristics as physical sexuality, the concept assumes a unique psychosexual connotation. Infantile sexuality denotes that this psychosexuality manifests itself right after birth—and even before—and its course largely shapes the future personality of the individual, while Oedipus complex is the direction of this infantile sexuality toward the parent of the opposite sex, or some parent substitute. Two other cardinal concepts are *conflict* and *polarity*, and further significant formulations are the *death instinct*, *ambivalence*, *regression*, *transference*, *conversion*, *dream analysis*, and a variety of others.

Psychoanalysis doubtless has been criticized more than any other school of psychology; nevertheless it is by no means on the wane and apparently continues to penetrate new fields and to gain new adherents, sometimes even among those who originally disdained it. The criticisms of psychoanalysis are directed primarily against the validity of its evidence; its unscientific methodology; its loose, sometimes inconsistent, delineation of concepts; and its highly figurative, personified, and reified terminology. One academic psychologist calls the process psychoanalogy. The rebuttal of the psychoanalysts is that mental life need not conform its method to those of the physical sciences, that it may have its special criteria of what constitutes proof and truth, and that their system is advisedly loose and open, to be modified by

further practice and discovery. To be sure, specific psychoanalytic hypotheses may be put to experimental and statistical verification, and some of them have actually undergone this test. But just as gestalt psychologists argue that an introspective analysis of a bit of experience may destroy its very nature, the psychoanalysts hold that conventional experimental and statistical setups may upset the essence of their methodology and the technique of their discovery. At any rate, even if most psychoanalytic assumptions should prove false and unworkable, their direct influence upon psychology has been tremendous and can hardly be exaggerated. Psychoanalysis has stimulated studies in motivation and personality, two of the most popular topics of contemporary psychology, which before had been practically neglected. It has helped in opening up to psychology the rich fields of psychopathology and mental hygiene, with its ramifications into functional genesis, psychological prophylaxis, and verbal therapies. Finally, it has brought forward to psychology the clinical approach, the problem of dealing with concrete individuals, with single cases—calling attention to the limitation of a psychology which is only, to use Gordon Allport's term, actuarial in prediction and practice. In all, it has brought psychology closer to life.

Purposive or Homeic Psychology. The psychology of William McDougall (1871-1928) which holds purpose, goal-seeking, and active striving to be fundamental categories of behavior and consciousness, and stresses the role of instincts in human life. The doctrine of instincts has since fallen into disrepute, but at one time (1906-16) it held sway over all social sciences. On the other hand, goal-seeking has become an increasingly lively concept which has found a place for itself in almost every major psychological trend. Even some behaviorists of the present day have reformulated the principles of that system sufficiently to include the concept of goal-seeking.

Purposive Behaviorism. The psychology of E. C. Tolman, which attempts a synthesis of behaviorism, gestalt psychology, and purposive psychology. Tolman emphasizes the need of postulating intervening variables between stimulus and response and considers

goal-seeking to be an objectively observable aspect of behavior.

Topological Psychology. The psychology of Kurt Lewin (1890-), which on the one hand is an extension of gestalt psychology into the fields of action, will, temperament, and personality, and on the other hand uses mathematical topology, the science of nonmetric space, as a tool of research.

Personalistic Psychology. The psychology of William Stern (1871-1939), which regards the total human personality as the only unit of psychology, as opposed to the division of personality into elements and traits. Stern was much interested in educational psychology and the psychology of childhood.

Individual Psychology. The teachings of Alfred Adler, who in 1911 broke away from the psychoanalysis of Freud. Instead of infantile sexuality, Adler stresses feelings of inferiority and goals of superiority (masculine protest, striving for prestige) as the chief motivating forces of life. He lays less emphasis upon the unconscious and more upon purpose, compensation, and the permanent "style of life" which the individual adopts in early childhood.

Analytic Psychology. The psychological system of Carl Jung, who dissented from the teachings of Freud. Jung stresses the collective or racial unconscious much more than does Freud, and does not give to childhood experience the significance attached to it by both Freud and Adler. The concept of the libido is to Jung a general urge toward growth, activity, nutrition, and reproduction. The concept of sex is a less pervasive principle than does Adler. Jung gives it more importance than does Adler. Jung is the founder of the typological concept of *introversion* and *extroversion* (q.v.).

Marxian or Dialectical Psychology. Contemporary psychology in the USSR, based upon the teachings of dialectical materialism by Marx and Lenin. Dialectical psychology is similar to functional psychology in its view that consciousness is adaptive in character, to behaviorism in its extreme environmentalism, to gestalt psychology in its consideration of total organization and qualitative factors, and has the distinctive features of regarding economic factors as primary determinants of hu-

man nature and of using dialectics as general working hypotheses.

Reflexology. A Russian variety of behaviorism with a much greater interest in the study of neural foundations of behavior. Historically reflexology preceded behaviorism but was much more naive in its psychological systemization.

G.S.R.

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PSYCHONEUROSES—See NEUROSES.

PSYCHOPATHIC CHILDREN. Psychopathic children are characterized mainly by emotional impulsiveness, lack of discipline, marked amoral and antisocial behavior, sudden moods, and an inability to modify or inhibit incorrigibility despite punishment and educative experiences. These children present serious problems of delinquency and social maladjustment, but they constitute only a small proportion of the emotionally disturbed children. (See MENTAL HYGIENE.)

J.F.B.-2

PSYCHOSIS. Psychosis is a severe mental abnormality in which the individual is unable to adapt socially, professionally and intellectually. He is a liability to himself and society and is adjudged to be insane. Psychologically it is the disharmonious working out of the normal conflicts of the mind. This

PSYCHOTHERAPY

conflict is resolved in the normal personality by a harmonious balance of the various psychological forces by successful repression or sublimation of some fundamental drives. In the psychotic personality the inadequately repressed urges activate behavior incompatible with reality. The modern point of view concerning the region of psychosis is known as the *organismic* or *psychosomatic* point of view, which regards all mental diseases as having both physical and psychical causal factors. In some cases, however, the organic or physical cause is of primary importance and we refer to an *organic psychosis*. When, on the other hand, the causal factor of primary importance is psychic, we refer to a *functional psychosis*. Functional psychoses are the most frequent of the mental disorders. Their principal forms are the schizophrenias and the manic-depressive psychoses. Close to 45 per cent of the resident population in hospitals are schizophrenic.

Schizophrenia is a disease which breaks out in its acute form in the adolescent period or later. Its symptoms are much introspection, daydreaming, little contact with reality, indifference and frequently mental reduction. There are many psychological theories for the causative factors of schizophrenia.

The *manic-depressive* is the second most frequently admitted of the psychoses. About 12 per cent of the new admissions to the mental hospitals are so diagnosed. Seventy-five per cent of these are females. Manic depressives are characterized by moods alternating between depression and elation. The elated manic state is marked by flight of ideas, lack of inhibitions, egocentricity, excitement and anti-social acts committed without guilt or remorse. The degrees of mania may range from excessive restlessness, impatience, and fast incoherent speech to violence, destructiveness or delirium. The precipitating factor, which is a catalyst already determined in the underlying dynamics of personality, is usually the loss of love object or an extreme frustration. The loss may be of a friend or of money or position. The frustration may be failure to get ahead, to gain a desired position, to arrive at some type of goal. All people are depressed at similar losses. The original depression may be looked on as simply an exaggeration of normal reaction to loss and frustration, but the degree of depression is extreme in the psychosis. It is characterized

by feelings of dejection, hopelessness, inactivity, withdrawal from people, and self-accusatory delusions. Severe irrational guilt feelings occur.

Psychoses of any sort are extremely rare in children. Accurate figures as to the precise incidence are not available because of the variability of diagnostic standards from clinic to clinic. The appearance of schizophrenia in early childhood is the most frequently observed and is higher in boys than in girls. Other psychoses of the manic-depressed juvenile parietic and epileptic type have been reported, but they appear rarely and often are not true psychoses. Hyperactivity is common in normal children and is difficult to diagnose as different from manic reactions. (See MENTAL HYGIENE.) J.F.B.-2

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PSYCHOTHERAPY. Psychotherapy refers to that phase of the treatment of psychic disturbances which uses psychological methods to influence the patient's readjustment. The goal of treatment is to help solve the emotional conflicts giving rise to the problems, to effect an adjustment of the individual to the reality situations with which he is confronted and which he will have to face throughout life—in total, to bring about a better integration of the personality. Manipulation of the environment may be utilized as a help (social therapy), and other types of treatment may be employed also, but where there is a disturbance of any severity, it is essential that adequate provision be made for psychotherapy or the treatment of the patient to effect emotional and attitude changes, desensitization to adverse environmental attitudes or help in handling them to make reality situations more tolerable.

In all psychotherapeutic procedures, the relationship established between the patient and the therapist is of major importance. As soon as the patient is accepted for treatment he is made aware that the psychiatrist looks upon his problems and difficulties as significant

and worthy of his full consideration and attention. Fundamental to the establishment of the therapeutic relationship is a friendly, nonjudgmental, tolerant, acceptant attitude on the part of the psychiatrist. Through this the patient is able to relate himself and unburden his problems, without fear of condemnation or criticism.

Treatment cannot be symptomatic; that is, it cannot be directed solely at the removal of the symptoms the patient presents. It must be directed at the underlying conflicts, the release of the emotion attached to them, and the re-education of the individual so that he is able to function adequately and with reasonable efficiency. The forms of psychotherapy may be divided into superficial and depth therapies.

The superficial therapies consist of reassurance, suggestion, persuasion, and reconditioning. The first three are self-explanatory. Reconditioning consists of bringing the patient into contact with the thing feared, simultaneously with the introduction of a pleasant stimulus. These forms of therapy are not too successful because the phobia, fear, or anxiety may be displaced elsewhere and reappear subsequently as another type of symptom, such as withdrawal from social contacts, inability to work adequately, etc. In general, while the more superficial forms of therapy may be of some value in less severe psychic disturbances, their value is usually only temporary, inasmuch as the underlying conflicts, with their accompanying emotional components, in many cases, have not been uncovered or resolved. They may be useful adjuncts, however, to the techniques of depth therapy, which include psychoanalysis and other forms of analytical and resynthesizing techniques.

Depth therapy aims at the uncovering of the stress producing conflicts. In psychoanalysis, a specific technique in psychotherapy, the psychoanalyst helps the patient analyze himself and become aware of the nature of his problems through free verbalization on the part of the patient, interpretation by the analyst as he sees the need, and development of a rapport between the patient and psychiatrist which allows the patient to bring to the surface and release the emotion attached to the painful areas, i.e., the bringing of unconscious conflicts to consciousness.

In any form of analytical therapy the patient can expose in himself the material, emotional as well as factual, through which the patient and therapist will work to achieve a satisfactory adjustment.

All psychotherapy rests upon the foundation that the patient wants to be helped or is willing to be helped. The treatment relationship is not always a "friendly" one. At times, the attitude toward the psychiatrist may be decidedly hostile and resistive. As treatment progresses and the patient becomes resistant to opening up emotional areas which, of necessity, are painful and distressing, he may try to withdraw from treatment. The relationship which develops between the psychiatrist and patient reveals predominating trends in the patient's personality and brings out the tendency which exists in everyone to relive childhood emotional attitudes toward persons in their present environment (transference). Treatment is usually of fairly long duration and requires frequent, regular contacts with the psychiatrist. The results are not seen too quickly in most cases. The emotional disturbances which have been built up over a period of years require treatment which may extend from several months to several years. There is also involved in successful treatment the understanding and cooperation of the people in the patient's environment.

The treatment of children's difficulties usually involves both parents and child. Therapy is directed at the parents to effect changes in attitudes toward the child and to help parents achieve an understanding of their own motivations and the release of their anxiety. The child usually is approached best through the medium of play therapy, of which there are many varying techniques. Essentially, play therapy is a means of dramatizing and releasing emotional tensions through the use of dolls and other toys, upon whom are projected the problem-producing conflicts. Of equal importance here, as in the treatment of adults, is the relationship existing between the child and therapist which permits the child to experience his conflicts in relation to a person who can understand them and help him to do so. Equally significant is the help given him to carry over into his everyday existence the more comfortable attitudes he has developed in the treatment situation.

Essentially, there are four phases to any effective psychotherapeutic procedure: (1) establishment of good relationship, (2) release of anxiety or resolution of the conflict, (3) insight into and recognition of the problem, and (4) reintegration of the personality. (See MENTAL HYGIENE.) G.M.A.

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PUBERTY—See ADOLESCENCE.

PUBLIC COLLEGES — See MUNICIPAL COLLEGES AND UNIVERSITIES; STATE COLLEGES AND UNIVERSITIES.

PUBLIC EDUCATION, COST OF — See FINANCE, SCHOOL.

PUBLIC OPINION AND THE SCHOOLS — See PUBLIC RELATIONS, SCHOOL.

PUBLIC RELATIONS, SCHOOL. The school's "public relations" generally refers to its organized information service for the purpose of keeping the public informed of its educational program. In this narrow sense, "public relations," differs little, if at all, from the term "publicity" and implies that all of the contacts between the school and the public are planned with a definite purpose of informing the public. That such is the case is far from the truth. There are innumerable contacts between the school and public that are not a part of any definite plan for informing the public of the educational program of the school but which may be even more effective than are the planned contacts in creating either favorable or unfavorable impressions. The impressions that the public receives as a result of any contact, planned or unplanned, constitutes what is known as public opinion. Therefore, it is essential that all contacts, no matter how unimportant or insignificant they may seem, should be of such a nature as to result in favorable impressions.

Public opinion, from the early days of our republic to the present, has exerted a strong influence upon public education. The control of public education, vested as it is in the

people of the state and in local representative groups, has insured the public against the possibility of having an educational system of which its citizens do not approve.

In spite of the fact that the majority of the public has a generally favorable point of view toward public education, believing that education has been improved and rejecting the idea that it has been overemphasized, there exists in many communities a lack of understanding between the professional educators and the lay public. Citizens who have opposed changes in the educational system have appeared to the educators to be obstructionists, if not actual enemies of education, while the educators have appeared to the citizens to be idealists, opportunists and tyrants.

Such lack of understanding is regrettable, and although it is more likely than not to occur in any community at times, it can be lessened, if not prevented, through a well-planned program directed to this purpose. It must be remembered that the public has less chance of being well informed regarding educational objectives, practices and needs today than in earlier times, when education was less extensive and complex and when both the schools and the communities they served were smaller.

There is no evidence to suggest that more than a few citizens of today are less interested than were their forefathers in providing the best educational program they can afford. However, the increasing total amount of money paid in taxes each year has led most citizens to become more critical of any changes in the educational program that are likely to increase school taxes.

Taxpayers cannot be expected to be willing to finance any project which they are not convinced is worthwhile or necessary. Since the public looks to the education profession for leadership in matters pertaining to public education, it is the responsibility of educators to collect, organize, and present to the public all the facts necessary for an adequate interpretation of the educational needs of society and to take the leadership in arriving at proposals for meeting these needs. Unless this is done, there is much evidence which suggests that organized groups backed by large taxpayers who are more interested in reducing school taxes than in meeting the educa-

tional needs of society will be increasingly influential in guiding public opinion.

In the past, many educators have confined their efforts in public relations to those situations in which it has been expedient to inaugurate a publicity campaign of one kind or another to convince the public of the need for some suggested change in the school's program in order to gain the necessary approval or financial support.

Today, more and more educators are coming to recognize the need for a continuous program of interpreting the school to the public. They are accepting the responsibility of keeping the public informed of (1) the reasons for the school's existence, (2) the extent and nature of the educational program, (3) the needs for improvement, and (4) the need for changes to meet new conditions in society. In order that everyone in the immediate community may be informed, every available facility for transmitting the information to the public is used, including public newspapers, school publications, teacher-relations, pupil-relations, exhibits and demonstrations, public addresses, parent-teacher organizations, mothers' clubs, the radio, the church, and other public community agencies.

When such arrangements are practicable, the facilities of the school are made available for the use of the public. Teachers and pupils as well as school administrators are taking an increasingly active interest in community affairs. Everything is done to make apparent the school's contribution to the welfare of the community, while at the same time the school attempts to make use of the resources of the community, thereby bringing more and more people into direct contact with the school and its educational program.

The public relations program is dignified, yet positive and aggressive. All facts, good and bad are presented in clear, concise and understandable language. No one part of the educational program is emphasized to such an extent that some other part is neglected.

Such a program of public relations or interpretation is possible only when the school is performing its educational functions adequately and when those in charge of the program are fully aware of the place and func-

tion of the school in society. (See also STUDENT RECRUITING.)

W.V.N.

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PUBLIC SCHOOL MOVEMENT—See COMMON SCHOOL MOVEMENT.

PUBLIC SCHOOL (IN ENGLAND)—See ENGLAND AND WALES, EDUCATION IN.

PUBLIC SPEAKING—See SPEECH EDUCATION.

PUBLICATIONS, SCHOOL. There are four main types of school publications: newspaper, magazine, yearbook, and handbook. Although each of these has a specific function, in general all of them serve to unify the school, encourage worthy school enterprises, influence public opinion, provide opportunities for creative work and self-expression, develop school citizenship, foster cordial relations among schools, and record the history of the school.

Newspaper. Although the school newspaper may include a bit of fiction, poetry, and humor, its main function is to publish school news—facts about school people and activities. In general material and form, the printed school paper resembles the commercial newspaper.

School papers are to be found in all grades of the school. The simplest, in the lowest grades, is the "told" paper, in which the news is merely told to a group. The "read" paper is similar to the told paper, but is more definitely organized and is written out and read to the group. "Posted" papers include those written or printed by hand and posted on the bulletin board or the blackboard. Mimeographed and multigraphed papers are common in smaller schools. The printed paper may be either a part (a page or section) of the local commercial newspapers, or it may be a complete school newspaper.

The details of publication—staff and organization, dimensions, number of pages, columning, advertising, etc., vary with the size

PUBLICATIONS, SCHOOL

of the school. In most schools the paper is published once a week; although there are some biweekly and even a few daily papers in American schools. Staff members are appointed by the faculty or its authorized committee, or elected by the school at large. Where the school offers courses in journalism, these classes usually publish the paper as their regular project. Normally a small charge is made for the newspaper, either directly through a regular subscription fee, or indirectly through the activity ticket.

Magazine. The magazine, the oldest type of school publication, is an outgrowth of the creative writing activities of the earlier school, where it was the custom to read student essays, poems, etc., at the meeting of the Literary Society or at public functions, such as graduation. Later this type of material was printed in the form of a school magazine, whose main purpose became the publishing of student-produced literature and art work. Because it appears usually only at intervals of about a month, it cannot present news effectively, although it may include summaries and historical records and accounts.

The main weaknesses of the typical school magazine are that it attempts to include news; it contains too much "humor"—mostly clipped and reprinted; it is apt to be uninteresting or sermonizing; and the material is often written or presented in immature fashion, often the case when the staff itself does all or nearly all of the producing. The present general trend is for the magazine to be considered the medium of publication for the best of all-school student writing. The staff contributes relatively little of the literary material, but, with the co-operation of the teachers, encourages writing as well as the production of art materials on the part of the student body. It then evaluates this material and selects and publishes only what it considers to be the best. A second trend is away from regularity of publication; instead of being published every month, the magazine is published only when enough good material has been found to fill it. Hence, it may be issued once a month, once or twice a semester, or even only once a year.

Yearbook. The annual, or more accurately the yearbook, a comparative newcomer in high school activities, is another of the high school's many imitations of the college.

This publication is historical in character; it presents a history of the school for the year, with particular emphasis upon the senior class, sometimes with secondary emphasis on the junior class. It is composed of writeups, descriptions, biographies, summaries, records, and similar material, with few or no strictly literary efforts. Photographs of students represent an important part of any yearbook.

In general form the yearbook varies from a small, inexpensive, mimeographed or multi-graphed booklet to a pretentious, expensively printed, engraved, and bound book. The yearbook is financed by sales of the book, advertisements, assessments of groups represented, and miscellaneous money-raising devices, such as cake sales, shows, parties, etc.

Handbook. The handbook or "freshman's Bible" is the youngest member of the school publications group, appearing only within approximately the last twenty-five years. The purposes of the handbook are to supply information concerning the school—its personnel, traditions, rules, organization, activities—and to give counsel and advice. Although designed especially for the new student, in larger schools it serves upper classes too as a reference book of school information.

The material of the handbook may be classified into the following groups: Introduction, Organization of School, Program of Studies, Student Organizations and Activities, and General Usages. The handbook is usually small so that it may be carried easily. Often it is bound in school colors, and is appropriately named and attractively illustrated. It is written in simple and clear style, with short sentences and paragraphs. It is usually given without charge to new members of the school, and often is studied systematically in freshmen home rooms.

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PUBLICITY, SCHOOL — See **PUBLIC RELATIONS, SCHOOL**.

PUEBLO PLAN. The Pueblo (Colorado) Plan, or Individual Progress Plan, is a method of instruction devised to overcome some of the difficulties of the graded system, used in most elementary schools, by providing an opportunity for each child to progress in school as rapidly as his ability permits. Under this plan individual instruction is, of necessity, emphasized. Although at times several children in a specific grade may be at the same point of development and may be working together under the guidance of the teacher, usually each child in the class is working on a different assignment while the teacher passes from child to child, directing or assisting, and determining each pupil's readiness for the next assignment.

Since each child is expected to progress at his own rate, and since promotions are based on the ability to do the work of the next grade, promotions to the next higher grade may occur at any time during the school year. Under this plan it is possible for a student with superior mental ability to do the work of two or three grades during one year. W.V.N.

PUERTO RICO — See **UNITED STATES TERRITORIES AND OUTLYING POSSESSIONS, EDUCATION IN**.

PUNISHMENT. A manifestation of maladjustment is best corrected by eliminating its basic causes. Misconduct is more than an offense that must be punished; it is a symptom to be investigated. The modern parent and teacher will make every effort to guard and promote the child's physical and mental health and to guide him into activities that meet his needs and interests. In this way, the basis for misconduct can be largely removed, and the problem of punishment becomes academic. However, misconduct does occur, even among the best adjusted children, and punitive measures must be taken, especially when the misconduct threatens to disrupt the activity or the morale of the group.

It then becomes necessary to administer punishment in such spirit as to minimize harm and to achieve some positive outcome.

The Psychology of Punishment. Punishment can be interpreted (1) as conditioning and (2) as an application of the law of effect.

(1) Punishment as conditioning involves the association of an undesirable act with an unpleasant consequence. The wrongdoer is exposed to punishment every time he commits the undesirable act. The punishment must follow the act so closely that the two become associated in the offender's mind. Until the conditioning is assured, there must be no exception to this rule. However, these requirements are rarely, if ever, realized in situations outside the laboratory, first, because the punishment usually follows detection rather than commission of the offense (thus children are punished not when they cheat but when they have been caught); secondly, because it is difficult to punish wrongdoing as regularly as conditioning would require (many offenses go unnoticed; others are ignored because of the existence of more pressing matters at the time the offense is committed); thirdly, because punishment is useful only as a means of eradicating a specific wrong response—it has little value as an incentive for the development of the correct response.

(2) A slightly different explanation of the psychological use of punishment is obtained by applying Thorndike's law of effect. Punishment is decidedly an annoying state of affairs and it is hoped that the infliction of punishment will reduce the likelihood of a repetition of the offense. The limitations of punishment justified by the law of effect are similar to those affecting punishment used as conditioning. Experimental evidence indicates that punishment may inhibit undesirable behavior, but that it can hardly be used to facilitate the child's positive adjustment to his environment. Recent investigations demonstrate that punishing the incorrect response is of little value to the learning process—in fact, in some experiments the repetition of the incorrect response did more to fix that response than the infliction of punishment served to weaken it. Positive incentives are far superior to punishment in strengthening proper responses.

The Basis for Punishment. The pre-

PUPIL ACTIVITY

R. PULLIAM, *Extra-Instructional Activities of the Teacher* (Doubleday, Doran and Co., Garden City, New York, 1930).
H. N. RIVLIN, *Educating for Adjustment* (D. Appleton-Century Co., New York, 1936).
W. R. SMITH, *Constructive School Discipline* (American Book Co., New York, 1936).

PUPIL ACTIVITY.

Learning is an active process. The degree to which the student participates actively in an experience indicates the extent to which he can learn from that experience. Learning is thus influenced only indirectly by the teachers' activity. Viewed from the standpoint of pupil activity, no teacher can ever teach a child anything; the teacher's function is to guide the child in learning.

The importance of pupil activity was discovered rather than invented by modern educators. Learning was an active process even when that fact was not recognized by teachers. If education a century ago placed so little stress on the nature of pupil activity, it was partly because our predecessors had so much faith in comprehension and memory. To them, knowledge was both virtue and power. If the student understood the rules of grammar, it was assumed he would speak and write grammatically. If he knew the facts of history, it was taken for granted that he knew how to study and interpret history. Today we all know what only some teachers had learned intuitively in the past: the child learns best when he participates actively in the process. If he is to learn to speak before a group, study of the principles of rhetoric is an inadequate substitute for the actual experience of speaking in public.

The older schools used pupil activity, else their students would have learned little, but they ordinarily restricted the field of activity to subject matter that was to be learned, and the activity consisted largely of comprehension and memorization. Today we take for granted that students should help select and plan the activities to be conducted by the class and that they should participate in the evaluation of these activities. Similarly, increasing emphasis is being placed on the appreciational and applicational aspects of the subjects studied in school. We believe today that the child can learn to assume responsibility only by actually having experiences that involve his assuming responsibility.

dominant aim of the punishment, whether it be retribution, deterrence, or correction, will determine the spirit in which punishment is administered; it will determine also when an occasion makes punishment necessary and the kind of punishment used. Punishment as retribution is unjustifiable in schools, for it assumes "contrariness" to be the real cause of the child's misbehavior. The teacher should be above the level of mere vengeance; his actions must show that the only reason for the punishment is that the misdemeanor is against the best interests of the child and of the group. Punishment as a deterrent may be effective in keeping some would-be offenders from behaving in an anti-social manner, but there are more effective ways of preventing misdeeds. Teachers who use punishment as a deterrent sometimes punish one offender severely as an example to the others in the class. This practice is fraught with danger, since martyrdom achieves the opposite effect from that sought through persecution. When punishment is used as a corrective measure it is seen not as a separate entity but as part of the total educative process. The specific offense becomes secondary as the teacher adjusts the nature and degree of the punishment to the child. It is used only as one means of removing a tendency to unsocial behavior. The emphasis is not on the "crime" but on the "criminal"; punishment does not fit the crime, but fits the criminal so well that he ceases to be a criminal.

When punishments are administered effectively they satisfy the following criteria: They aim at modifying the child's behavior and not at punishing him for past misdeeds. They are not regarded as constituting the complete treatment for problem behavior. They assist the student in making a sound adjustment to his environment. They are used only when the child fails to respond to more positive appeals and incentives. They are adapted to the child. They are not unduly severe. They leave no residue of antagonism or resentment. (See CORPORAL PUNISHMENT; NATURAL CONSEQUENCES.)

C.M.R.

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M. W. CURT, *Child Psychology* (Longmans, Green and Co., New York, 1930).
G. C. MYERS, *The Learner and his Attitudes* (Benj. H. Sanborn and Co., Chicago, 1925).

It is unfortunate that pupil activity is sometimes interpreted so narrowly that it becomes synonymous with motor activity. Pupil activity in swinging hammers and shouting youngsters does not necessarily yield any appreciable educational value. On the other hand, a class that is listening to a lecture may be learning a great deal if the students are listening in order to find the answers to questions they have formulated. When learning is explained in terms of pupil activity, the expression refers as much to mental and social activity as to physical activity. (See ACTIVITY PROGRAM.) F.A.B.

Reference.

National Society for the Study of Education, *33rd Yearbook, Part 2, The Activity Movement* (Public-School Publishing Co., Bloomington, Ill., 1934).

PUPIL-CLOCK-HOURS. The term *pupil-clock-hour* differs from the broader term, *service load*, in that the former does not include all the service rendered by a teacher in a school system. It is, however, the most widely accepted method of measuring the teaching load.¹ In order to calculate the number of pupil-clock-hours per week that a teacher teaches, we multiply the average number of pupils taught per day by the average number of hours of instruction per day by the number of days taught each week. Thus, if a class of 20 pupils meets 5 days a week for 50 minute periods each day, the number of pupil-clock-hours per week for this class is $20 \times 5 \times 50$ or 88.33. If a teacher meets six

60

such classes a day, then his load in terms of pupil-clock hours a week is $20 \times 5 \times 50 \times 6$

60

or 500.

The load of the elementary-school teacher, as measured by the above formula, is larger in cities than it is in rural communities. It increases as the population increases. White teachers carry much lighter loads in terms of pupil-teacher ratio and class size than do Negro teachers. The trend, however, between 1931 and 1936 was towards a decrease in class size for kindergartens and elementary schools of city school systems.⁴ From an examination of the reports for schools of rural school systems, one finds approximately the same situation. Most studies show the pupil-teacher ratio to be heavier for women teachers than for men, but men spend approximately

50 per cent more time in other school activities;³ thus, bringing out the failure of pupil-clock-hours and pupil-teacher ratio to indicate the actual load of the teacher.

In applying this measure in the National Survey of the Education of Teachers, the number-of-pupils factor was omitted from the formula with the result that the teaching load was measured in teacher-clock-hours. The clock-hour class load per week was found to be lightest in medium sized cities. The median loads for both junior and senior high-school teachers in 1930-31 were between 25 and 30 clock hours a week. There was little relationship between size of community and the teaching load of secondary school teachers. The median load of college and university instructors for the same period was 15 teaching clock hours a week. Teachers in junior colleges and teachers' colleges carry the heaviest clock-hour loads,² of all college and university instructors. (See TEACHER LOAD.)

D.H.C. and A.R.A.

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3. A. C. LAMBERT, "How Long is the Teacher's Day?" *Nation's School*, XIII: 38-40, Feb., 1934.
4. "Size of Class in Public Schools in 139 Cities, 30,000 to 100,000 in population," *Education Research Service*, Circular No. 7, National Education Association, Department of Superintendence and Research Division (Mimeo.), 1936.

PUPIL PERSONNEL—See CHILD ACCOUNTING; GUIDANCE.

PUPIL STATION — See BUILDINGS, SCHOOL.

PUPIL-TEACHER RATIO. The pupil-teacher ratio of a school is computed by dividing the total number of pupils enrolled by the number of teachers. Accrediting associations employ this measure as one index of the teaching load of a secondary school and usually set the maximum at thirty pupils to one teacher. If comparisons among schools are to be valid, it is necessary that the same procedure be employed in defining a teacher. Therefore, some arbitrary rule is usually followed in a particular situation to determine how the principal, librarian, supervisors, etc., are to be counted.

PUPPET SHOWS — PURPOSEFUL PSYCHOLOGY

The student-teacher ratio is sometimes used to evaluate the teaching load in colleges and universities. However, it is relatively unsatisfactory as such an index, since the complexity of an institution of higher learning makes it difficult to determine accurately the number of instructors and students upon which to base the ratio. For example, many college teachers combine teaching with research or administration and many college students carry only part of a full schedule. Moreover, some college classes are administered in small seminar sessions while others are conducted in large lecture halls. As a result, the computation of the student-teacher ratio may yield a meaningless number that does not indicate how many students the average instructor at that institution does teach.

PUPPET SHOWS—See **DRAMATICS**.
L.M.C.

PURCHASING, SCHOOL. The procurement of supplies and equipment for schools by payment of cash or value. In making school purchases it is helpful to have a standardized list of supplies and equipment to serve for basic needs. This can be coupled with request forms to be used by members of the staff in indicating their needs, and with inventory records of supplies and equipment on hand.

Among the plans employed in actually making purchases are purchasing without much reference to prices or quality of articles from other firms; purchasing after checking with other firms but not letting bids; and purchasing on bids. There is great variation in the definiteness of the specifications on which the bids are supposed to be made.

Thousands of dollars are wasted each year by small schools for the privilege of buying their own supplies. Since the individual school district is usually too small to obtain the most advantageous prices on school supplies and equipment, cooperative purchasing by several districts can be used as a means of reducing costs. Cooperative buying for schools may be the result of voluntary extra-legal effort or of legislative enactments. In California, which provides by law for county-wide purchasing of school supplies, it was found that cooperative buying of school supplies effected an average savings in some counties of approximately 50 per cent. North Carolina and Delaware have established a state purchasing agency.

The type and cost of materials as well as the geographical location of the district are factors affecting purchasing procedures. Usually the more detailed and standardized the specifications, the better is the purchase. Obtaining bids on small items and limited quantities is a waste of time and money. Governmental regulations, such as price ceilings and priorities, markedly affect purchasing procedures.

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H. H. LINN, *Practical School Economics* (Teachers College, Columbia University, 1934), Chapter V.
C.A.D.Y.

PURPOSEFUL ACTIVITY. About the time the project method appeared, a number of words were used to describe the qualities associated with it. One of these words was "purposeful." This adjective directed attention to the inner worth and feeling attached to the undertaking by the pupil. In other words, the pupil felt the purpose behind the activity was his; it was his choice; it was his will supporting the job. The contrast here was with schoolwork that was assigned and required by the teacher, and done by the pupil without any choice or share on his part. Purposeful activity comes under the general heading of motivation. Mental-set is another term meaning about the same as purposeful. Each term implies that the learner will be better if the learner has the right attitude toward his work. If the learner has a real purpose—his purpose—as the stimulating factor, he will throw himself into the task. The average pupil who purposes to build a piece of furniture because he needs the furniture admittedly applies himself and learns more about woodwork than the pupil who makes an article because the teacher demands it. It is inner determination as opposed to outside dictation.

Initiation of the purpose can rest with the teacher or it may come directly from the pupil. The important consideration is that the pupil himself feels the worth of what he is doing and learning. (See **INCENTIVES, PROJECT METHOD.**)
F.A.B.

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W. H. KILPATRICK, *Foundation of Method* (The Macmillan Co., New York, 1925).

PURPOSEFUL BEHAVIORISM — See **PSYCHOLOGY, SCHOOLS OF.**

PURPOSEFUL PSYCHOLOGY — See **PSYCHOLOGY, SCHOOLS OF.**

Q

Q—See **VARIABILITY**.

QUAKERS, EDUCATIONAL WORK OF—See **FRIENDS, EDUCATIONAL WORK OF THE SOCIETY OF**.

QUALITY SCALE—See **ACHIEVEMENT TESTS**.

QUARTER HOUR—See **CREDIT**.

QUARTERLY PROMOTION — See **PROMOTION**.

QUARTILE—See **PERCENTILE**.

QUARTILE DEVIATION—See **VARIABILITY**.

QUESTIONNAIRE METHOD. The questionnaire method refers to the construction and utilization of a form which is designed to secure responses to certain questions. The form, or questionnaire, may be used to get at factual information, interests, attitudes, opinions, and judgments. Opinions may be treated as facts, in the sense that their existence may be factually established. But opinions about facts must not be confused with the facts themselves.

The questionnaire method is generally dependent upon the voluntary cooperation of the persons who are questioned; its validity is dependent upon the degree to which the persons questioned form a representative group and upon the truthfulness of their answers. To secure cooperation it is frequently advisable to utilize some form of motivation or appeal. This may be coupled with a frank request for truthful and sincere replies. Anonymity frequently leads to freer responses.

It is unfortunate that the widespread misuse of the questionnaire has resulted in its being generally discredited as a source of data. Among the misuses, perhaps the most devastating are their use in connection with insignificant investigations, the inclusion of trivial questions, and the request for informa-

tion which is available in other sources. These practices have alienated many persons and worked to the detriment of qualified investigators. In addition, there are technical limitations which may operate to destroy the reliability and validity of questionnaire data and thus produce misleading results. These abuses and limitations may be overcome through the proper construction and administration of the questionnaire. The following precautions, among others, should be carefully observed.

(1) The technique should be used only when there is no other feasible means of securing the required information. (2) Every question should be carefully checked for significance and lack of ambiguity. (3) Technical terms which may be variously interpreted should be adequately defined. (4) Long, involved questions should be avoided. (5) "Leading questions" which suggest or otherwise hint at the expected or favored answer should be scrupulously examined and either removed or reworded. (6) "Cross-checking questions" may be worth including in order to check on the consistency of the response. (7) The mechanical features should provide a pleasing format with adequate space for the answers. (8) The responses or entries required on the form should be of as simple types as possible. (9) The replies should be in a form capable of necessary statistical analysis. (10) The questionnaire should be as short as possible, since excessive time required to answer questions leads to careless responses, omission of items, and fewer returns. As a final precaution, the questionnaire should be subjected to one or more preliminary trials with representative samplings of the individuals for whom the questions are designed in order to detect limitations that might otherwise be overlooked. (See **RESEARCH, EDUCATIONAL**)

H.G.

Reference.

L. V. Koos, *The Questionnaire in Education* (The Macmillan Co., New York, 1928).

QUESTIONS AND QUESTIONING

QUESTIONS AND QUESTIONING.

The expression "question and answer method" has been used generally to mean the practice of developing a lesson or carrying on classroom activities by means of a series of questions and answers. Such a procedure has often resulted in routine testing or a mere recital of facts amounting to little more than lesson-learning. In modern practice, teachers plan their courses upon such bases as topics, problems, projects, or units, so that pupils have opportunities to engage in a variety of activities essential to the attainment of the desired outcomes or goals. These activities can be organized effectively by the use of such different procedures as recitation, discussion, problem-solving, practice or drill, directed study, etc. Questioning has a place in each of these teaching procedures and a degree upon his ability to use questions effectively. Proficiency in questioning rests primarily upon a thorough understanding of the ways in which questions may be used to stimulate and direct the activities necessary to the attainment of the desired goals.

While it is evident that questioning is used chiefly to discover how thoroughly the pupils have prepared their lessons, it is used also for many other purposes: (1) to discover (diagnose) weaknesses of a class and individual pupils, (2) to motivate pupils through careful and skillful checking of preparation and achievement, (3) to stimulate interest and provide motives by directing attention to important points and phases of work, (4) to direct and stimulate the thinking of pupils and improve their ability to organize and think through what is being studied, (5) to clarify understanding of the organization of work and material studied, (6) to provide practice or drill, (7) to discover interests of pupils, (8) to stimulate the formation of attitudes, interests, appreciations, and habits of conduct, and (9) to set up and direct classroom procedures involving the work of units, problems, projects, etc. To fulfill these purposes the teacher must necessarily adapt his questions and technique of questioning to the ends in view. This adaptation requires careful consideration of the outcomes, the kinds of questions, and the techniques of questioning.

In determining the nature of questions that should be used there are a number of important points to be kept in mind. The first is that the questions should conform to the purpose for which they are used. Questions to test knowledge of facts require purely memory or recall responses, while questions to test ability demand analysis, comparison, evaluation, etc. Second, questions should present a challenge which stimulates responses vitally related to the objectives. To accomplish this the relative importance of topics and problems must be considered. A question may conform to the purpose for which it is used and yet present no real challenge to stimulate and direct thinking. Another consideration is that the wording of a question should be in good English, clear, brief, and definite to avoid need for repetition or clarification and to prevent waste of time in getting at the objective. The questions should not follow too closely the wording of the textbook, and the sequence of questions should be independent of the organization of the text, lest pupils try only to remember what is in the book at the expense of independent thinking on the subject. Finally, questions should be adapted to the ability and experience of the pupils to whom they are addressed. The use of words unfamiliar to pupils is one of the frequent violations of this principle.

The kinds of questions may be classified into two main divisions, (1) memory questions, involving recall, and (2) thought questions, involving reflective thinking. Thought questions may be divided roughly into two types, namely, those questions necessitating recall followed by an evaluation of the facts or some other relationships, and those questions calling for an evaluation of facts or conditions furnished the pupil.

The technique or procedure used in questioning is important. In developing topics or problems the questioning should be planned in such a way that pupils see the significant relationships concerning the topics or problems. To accomplish this the teacher should select the important relationships to be developed and then plan the key questions which are to indicate these relationships, thus unifying and integrating the pupil's work and his knowledge. This use of questions gives the pupil a meaningful perspective he would

not be apt to get through fragmentary questioning. There are other points of good procedure in working with groups of pupils: (1) Questions should be asked in a natural, interested, and conversational tone. (2) Questions should be addressed usually to the entire class before indicating which pupil is to answer. (3) As much as possible, all pupils should be brought into the discussion. (4) The pace of the questioning should be adapted to the particular objectives in view, thus drill questions may be asked in rapid sequence but thought questions should allow time for reflection and for organizing the answer. (5) The distribution of questions should be adapted to individual differences and needs. (6) The practice of repeating the teacher's questions and the pupil's answer should be avoided unless there is a definite reason for repetition.

Teachers have also learned to avoid such poor practices as the use of (1) leading questions that suggest the answer, (2) catch questions, which are usually irrelevant, (3) indefinite, "Discuss," and "What about" questions, and (4) meaningless questions, such as "isn't it?" "didn't he?" etc., at the end of statements.

Questioning has been referred to as an art, an art that distinguishes the good teacher from the mediocre one. As with all arts, superior achievement cannot be attained merely by learning rules, although the intuitive or deliberately acquired understanding of basic principles should improve performance. Preservice courses for teachers and books on methods of teaching have placed so much emphasis on the so-called rules of questioning that many a young teacher is under the mistaken impression that his skill in using the question as a teaching procedure depends on the regularity with which he follows such a suggestion as that questions be addressed to the whole class before calling on the student who is to answer. These guiding prin-

ciples are helpful, but they are far from adequate for indicating how the teacher's questions can become more significant and more challenging for his students. When we turn to Socrates as a classic illustration of the use of the question as the major instructional procedure, it is not because Socrates always waited fourteen seconds before calling for the answer. If the teacher is to become a skillful and a stimulating asker of questions, he must have so thorough an understanding of his students' mental processes and so complete a mastery of the area being studied that he can select and organize his questions effectively.

Too much emphasis has been placed on the questions which the teacher asks rather than on those which the student asks. The asking of questions often becomes part of a classroom ritual when the teacher asks questions in order to see whether the pupils can express the answer which the teacher has already formulated in his own mind. It should be part of the teacher's aim to see that classroom experiences are so meaningful that it is the students who ask most of the questions. "The Questioning Age" is described by psychologists as the period when the child is from three to six years of age. Significantly, it is in the years before the child enters school that he asks most questions. If the child's questions are welcomed and encouraged by teachers and parents, every age should be a "questioning age"; in fact, the longer a child has been at school the more frequent and significant should be his questions. (See such articles as DISCUSSION METHOD; PANEL DISCUSSION; and RECITATION.) T.M.R.

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QUINTILE—See PERCENTILE.

R

r—See CORRELATION (STATISTICS).
R.O.T.C.—See MILITARY EDUCATION.

RADIO EDUCATION, ADVISORY COMMITTEES ON.

Several groups have been organized to assist the teacher in the use of radio as an educational instrument. Among the most active of these is the Federal Radio Education Committee (FREC), United States Office of Education, Washington, D. C. This committee was organized in 1935 by the Federal Communications Commission to eliminate controversy and misunderstanding among educators, and between educators and the broadcasting industry. The FREC has sponsored research on significant problems in the utilization of radio in the schools and initiated the Educational Radio Script and Transcription Exchange. It publishes the monthly *FREC Service Bulletin*. The Radio Division of the United States Office of Education assists local radio research and program production, lends scripts and recordings, and serves as a central clearing house for all kinds of information concerning various aspects of educational radio. It cooperates closely with the FREC.

For eleven years the National Committee on Education By Radio served as one of the principal advisory committees on the use of educational radio. This committee has now discontinued its activities, but copies of its final report, *Tune In For Education*, are still obtainable from Room 308, One Madison Avenue, New York, N. Y.

In 1942 the Association for Education by Radio was formed by educators interested in the school use of the radio. It holds annual meetings and issues the *Journal of the AER*. Headquarters are at Rocky Mountain Radio Council, Denver, Colorado.

RADIO IN EDUCATION. Radio has added immeasurable opportunities for variety and sparkle in teaching. It has introduced into

the classroom new authoritative voices, dramatic presentations, and ringside seats to world events in the making. The teacher of English has been able to bring presentations of the great plays, readings by contemporary poets, and examples of good speech. The science teacher now has available science forms, news of inventions, and recreation of dramatic episodes in the fight against disease. The music teacher has especially good courses in music appreciation and stories of great composers to present to his class. The social science teacher has been indeed fortunate in the wealth of current material, historical dramas, and broadcasts of great events. The radio promises much for the future of education, but much of its promise remains yet to be realized.

Among the difficulties in using a radio in the classroom are the following: desirable programs do not come at an hour when they may be utilized for class work; programs often do not gear into the sequence planned for a particular course; many schools are not properly equipped for radio reception; and efficient techniques for the utilization of the radio have not been developed. The experimentation which has been conducted with this new teaching tool has led to the conclusion that the best programs for use in the schools are those which send out announcements of their programs well in advance (See *Teachers Manual*, Columbia School of the Air of the Americas and NBC Inter-American University of the Air), provide the teacher with a synopsis of the material to be presented, and furnish suggestions for integration of the program into the school curriculum. There is a place for the use of the broadcast of such unusual events as a presidential inauguration or an address before Congress. The school program should be flexible enough to make room for such a broadcast. There is, too, a place for the assignment of listening to such programs which come in evening hours, as "Cavalcade of America." This type of listening is

RANDOM SAMPLE — RATE BILL

difficult to control. An increasing number of teachers are overcoming this difficulty by purchasing transcriptions of such programs and playing them to their classes at the time when they will contribute most to desirable learning. (See AUDITORY AIDS.)

Still other school systems have attempted to solve many of the problems of radio utilization by setting up school broadcasting stations. In the city of Cleveland, the School Board broadcasts regular lessons, and in New York City, the Board of Education maintains its own studios (WNYE, a division of WNYC, the municipal station). Instructions and supplementary aids in the form of slides, maps, readings, and the like are sent to the teacher at the beginning of the term along with a synopsis of the program. The radio lesson then becomes an integral part of the child's experiences in connection with the local curriculum. It supplements the teacher and works hand-in-hand with him. Schools which are not able to set up regular broadcasting stations have used their central sound systems as a broadcasting unit for the various classrooms, utilizing student, faculty and other local talent, or using recordings.

Out of the experimentation conducted to date the following general principles have been evolved: (1) Purchase a good standard receiving set. (2) Select programs carefully, avoiding those which contain too much extraneous material. (3) Conduct the radio lesson in a natural classroom setting where maps, pictures, and other supplementary aids may be utilized. (4) Discourage note taking during dramatic presentations; substitute the writing of summary notes at the close. Note taking is valuable when a plan or program of action is being presented. With younger students it has been found best to have the teacher outline the program on the blackboard. (5) Follow up the broadcast with further activities which will clarify and enrich radio material. (6) Hold the students responsible for radio material and constantly evaluate the contribution of any particular program or series of programs. W.H.H.

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RANDOM SAMPLE—See SAMPLING.

RANGE—See VARIABILITY.

RANK ORDER. Rank order is the number assigned to individuals in a group when they are being counted from the top down, the highest individual receiving a rank of one; although sometimes the counting is done, arbitrarily, from the bottom up, giving the lowest person a rank of one. If there happen to be two or more persons tied for any rank position, the customary tie-breaking procedure is to consider all the rank positions that would be occupied by the tied individuals, without regard to which rank belongs to whom, then to assign to all tied individuals alike the mean of the ranks they occupy. For example, if two tied individuals come just below a rank of 7, they would normally occupy ranks 8 and 9. Not knowing which is which, we assign the rank of 8.5 to both. The next person below them then has a rank of 10. Three persons tied for ranks 11, 12, and 13, should all be called 12 and the next lowest person 14. At the bottom of the list the last person should have a rank of N , the number of individuals in the list, unless two or more persons are tied at the end of the list. This serves as a rough check upon the correctness of ranking, particularly in dealing with ties. J.P.G.

RAPID ADVANCE CLASSES — See CLASSIFICATION OF STUDENTS.

RATE BILL. The rate bill or rate tax was widely used in the early days of school support, particularly during the eighteenth and early nineteenth centuries. In this unique form of cash support, pupils were assessed on a per capita basis to cover the costs of schooling above the funds on hand. Thus the amount to be paid by pupils or their parents was pro rated.

The following is an illustration of how the rate bill was applied locally:

RATING SCALE — RATIONALISM

Cost of education for school year.....	\$1,100.00
Raised locally by such means as taxation.....	500.00
To be raised by rate tax.....	600.00
Number of pupils in school (40).....	
Rate per pupil (\$600/40).....	\$ 15.00

Later, this system gave way to complete public support. C.A.D.Y.

RATING SCALE. A rating scale is an instrument consisting of a series of traits relating to the achievement, character, or personality of an individual or to the attributes of a thing, with provision for recording the judgment of the rater as to the degree to which each trait is possessed. An effort is usually made to assign numerical weights to the different traits according to their relative importance and to indicate by descriptive words or phrases the varying degrees to which each trait is manifested. Rating scales may include such questions as 'To what extent does this student participate in campus social activities?' — regularly — frequently — occasionally — rarely.

Since an accurate judgment can be made only when the judges have a clear picture of what is to be rated, the trait under consideration must be defined carefully. *Operational definitions* (q.v.) are helpful. *Graphic rating scales*, too, are superior to ordinary rating scales and check lists because each step on a graphic rating scale is defined by descriptive phrases. A typical question on a graphic rating scale is: *To what extent does this student participate in social activities?* — regular participant in social activities and leader and initiator of many social activities — regular participant in social activities and an occasional leader — frequent participant but rarely if ever a leader — occasional participant — never a participant.

The judges must have had many opportunities to observe samples of the behavior being rated. In this way errors in rating, which result from lack of familiarity with the trait in question, may be reduced. Other errors in appraisal arise from the failure to eliminate personal elements which enter into the judgment. The term *personal equation*, originally developed by astronomers to characterize individual differences in recording observations, now describes any personal difference in an individual's bias or behavior. Thus, the judge's personal equation enters into appraisals made by means

of a rating scale. Some judges consistently rate individuals either too high or too low, thereby introducing a constant error in the ratings they make. Others are unwilling to give ratings which indicate extreme superiority or inferiority in a given trait, tending to rate all individuals as average.

The validity of the ratings is often reduced by the *halo effect*, which refers to the influence the rating on one trait exerts on the rating of a second trait. Thus, if applicants for a position are rated for appearance, intelligence, poise and health, a person rated high in appearance may be rated higher in the other traits than he deserves.

The reliability of ratings may be increased by combining the judgments made by several persons. Ordinarily, using from three to five judges will give satisfactory results. As has been indicated above, greater reliability is attained when the trait to be rated is divided into several subtraits, which are described concretely with separate ratings given for

C.C.R. and J.J.

RATING SCALES, TEACHERS — See TEACHERS, RATING OF.

RATIONALISM. In a very broad or even loose sense, rationalism applies to any commitment to use reason in the affairs of life. It is in a more restricted sense, however, that rationalism derives its usual meaning. Here it refers to an exclusive dependence on reason, especially *a priori* reason, as the chief source and final criterion of knowledge. In this sense it strikes out on the one hand against knowledge predicated on authoritarianism or unreasoned religious belief and on the other hand against knowledge which is based on empiricism.

Part of the enlightenment in the seventeenth century, rationalism was both effect and cause of the transition from authoritarianism to individualism, from classicism to modernism. Although starting with systematic scepticism, it aimed at eliminating uncertainty from knowledge. This it proposed doing by discarding all presuppositions and accepting in their place only that which was clearly and distinctly intuited by or immediately self-evident to reason.

This philosophy had its chief influence among Catholics in the Oratory and Port

Royal schools and among Protestants in the schools influenced by Pietism and Deism. There the result was to decry the conventional mode of learning on authority and to institute in its stead the method of insuring that children clearly understand what they learned. While the syllogisms of Aristotle were recognized for the dialectical training they afforded, it was denied that they were a valid means of gaining new knowledge. Consequently schools affected by rationalism were usually favorable to the introduction of the new scientific studies. Furthermore, they emphasized the vernacular and made their discipline mild and reasonable.

Useful as rationalism was as a protest against the old order and in developing people who could think freely about the new, it became formalized and decadent in the schools of the eighteenth century. Its chief influence was felt in the education of the upper classes with their affected superiority. Here everything was viewed in the cold light of reason. If on the one hand this involved teaching a full control of one's physical emotions, on the other hand it prevented unrestrained enthusiasm in one's studies. Consequently, perfection of form and polite manners prospered at the expense of sincerity. Moral education consisted of punctilious conformity to a strict code of conduct. The attendant lack of seriousness found further expression in a curriculum which stressed worldly wisdom and only a smattering of solid knowledge.

Against an education which had become so rational as to have turned cynical, selfish, and contemptuous of the masses, it is small wonder that the fresh spontaneity of naturalism was so heartily welcomed as an antidote. But naturalism and subsequent intellectual movements in the nineteenth and twentieth centuries were not so much anti-rational as they were attempts to achieve an accommodation between the rational and the empirical.

J.S.B.

RATIONALIZATION. Rationalization is a kind of prevarication or falsification in which, knowingly or unknowingly, excuses, explanations, or motives that are not the true ones are offered to justify one's conduct, beliefs or opinions to one's self or to others. A more or less plausible explanation, which

does not seem like simple lying, is offered. Thus the pupil attributes his low grades to the "cribbing" of the other pupils or the partiality of the teacher, instead of to his own lack of application or of ability.

Rationalization may assume various forms, such as telling "white lies;" resorting to hypocrisy; withholding relevant facts; distorting, exaggerating or embellishing facts; inventing silly or ridiculous answers to divert attention or conceal the underlying motive; developing an illness or neurosis as an excuse for shirking detested duties—in fact, all kinds of defense mechanisms may be regarded as different forms of rationalization.

People try to rationalize away their difficulties because they want to camouflage their real feelings or motives, to avoid giving offense by telling the bald truth, to avoid performing distasteful tasks, to enhance their egos by rationalizing their motives on a higher plane than is justified, and to use a type of deception that often works. The motive sometimes operates automatically through force of habit or "buried complexes."

The objections to rationalization are manifold. At best it represents efforts to dupe others and to deceive one's self. It is a great foe to general educational and intellectual growth and socialization because it does not encourage the attitude of intellectual honesty, open-mindedness, and unprejudiced objectivity. It is an admission of failure to grow up and achieve intellectual independence. It is a form of infantile fixation or regression.

J.E.W.W.

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RAW SCORE—See SCORES, CONVERSION OF.

READING DISABILITY. An individual whose ability in reading is definitely below normal expectancy for both his age and his general intelligence is said to have a *reading disability*. Although in general there is a fairly close relationship between intelligence and reading comprehension, severe reading

READING DISABILITY

disabilities may be found in children of normal or superior intelligence.

Comparisons of groups of reading disability cases with groups of normal readers have shown that no one factor is responsible for reading disability. In an individual case or, more frequently, several of the following: (1) lack of readiness when first given instruction in reading, followed by inability to make up the lost ground and the development of unfavorable attitudes towards reading; (2) physical handicaps, including defective vision, defective hearing, and endocrine abnormalities; (3) generally retarded language development, usually related to a marked cultural handicap or a speech defect; (4) confused directional tendencies, resulting in failure to develop systematic left-to-right habits of observation in word study and reading; (5) poor emotional adjustment accompanied by inability to maintain sustained effort and attention, and sometimes by a special aversion to reading; (6) accidental interference with the learning process through frequent or prolonged absence, or the disrupting effect of frequent change of school or teacher; and (7) poor instruction.

Most cases of reading disability are capable of marked improvement with appropriate special instruction.

Remedial reading is a descriptive term applied to all methods of teaching reading which are intended specifically to improve the proficiency of retarded readers. The suggestion that remedial efforts made in a regular classroom situation should be called "corrective reading" and that the term "remedial reading" should be reserved for work with individuals and small groups has not been generally accepted.

Good procedure in remedial reading starts with careful diagnosis. The pupil's ability in both silent and oral reading is thoroughly analyzed to locate important weaknesses in word recognition, fluency, and comprehension. For this purpose both standardized tests and informal procedures are used. A study is made of the child's mental ability, physical condition, home environment, emotional condition, and school history to discover the probable underlying causes of retardation. On the basis of this analysis a

plan of instruction is worked out to meet the child's needs; wherever possible the causes of retardation are removed.

It is important in remedial reading to direct the instruction to the child's reading level. If a sixth grade child is weak in basic skills usually acquired in the primary grades, it is necessary to re-teach those skills. In extreme cases it is sometimes essential to start over again at the beginning of first grade work. Materials used should be at, or below, the pupil's grade level in reading ability, and difficulty should be increased gradually as the child improves.

Another major requirement is adequate motivation. Retarded readers need to be given confidence in their ability to learn; encouragement, praise, and the dramatization of improvement by means of progress charts are important. The reading material used should be carefully chosen on the basis of interest appeal as well as difficulty. Monotony should be avoided by the use of a variety of reading activities, and when drills are necessary they should so far as is possible be enlivened by treating them as games or contests.

With non-readers and extreme cases of reading disability, the major problem is usually the teaching of word recognition. Try out lessons may be utilized to determine whether the pupil is likely to make most rapid progress with a visual, phonic, or kinesthetic method or with a combination method.

The kinesthetic method is a procedure for teaching word recognition to extreme cases of reading disability. The essence of the method consists in writing a word in large script and having the pupil trace over it again and again with his fingers touching the copy until he can write the word from memory. The printed form of the word is taught by presenting it on a card which also contains the script form. After words have been learned, flashed exposures are used to develop speed in recognition. Connected reading material is introduced only after the pupil has learned all the words contained in that material. The method requires individual tutoring and is ordinarily used only when the pupil has shown marked inability to learn by visual or phonic methods. It is frequently employed as a supplementary method for teaching words on which pupils have special difficulty.

For moderately retarded readers in the upper grades and secondary school, common remedial problems are developing an interest in reading, increasing reading vocabulary, providing practice in specific types of silent reading, and improving rate of reading. Good remedial programs at these levels usually provide a balance between extensive reading of easy recreational materials and practice exercises of various kinds to overcome deficiencies in comprehension and rate. A number of special work-books and remedial textbooks are available which can be used profitably in such programs.

While the extreme cases usually require more individual attention than can be provided in a classroom situation, moderately retarded readers can be taught successfully in classes of ordinary size. Special provisions for remedial work may be made by organizing a remedial reading class under a specially trained teacher or by classifying pupils into homogeneous groups for reading instruction. Teachers of remedial classes usually divide the class into smaller groups for instruction or provide individualization by means of differentiated assignments. (See **READING, METHODS OF TEACHING.**) A.J.H.

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READING, EXTENSIVE. For many years there has been a division of opinion concerning the relative merits of extensive and intensive reading. Extensive reading means wide reading in a variety of sources, while intensive reading means a program of careful and detailed study of a limited amount of reading matter. In the teaching of English the conflict has been between those

in favor of careful study of a few classics and those advocating wide but relatively superficial reading from a large list of approved titles; in the social studies the issue is the relative importance of the textbook as compared with collateral and supplementary references; and in the teaching of reading itself difference of opinion exists regarding the stress to be placed on readers as compared with other sources of reading materials.

The main arguments in favor of extensive reading are that (1) it provides richness of vicarious experience from which the reader develops a wealth of vocabulary and useful concepts in a natural way, (2) it makes possible a close adaptation of instruction to the individual differences among the pupils, and (3) it tends to arouse favorable attitudes towards learning and aids in the development of desirable intellectual interests. When relied upon exclusively, extensive reading is subject to criticism on the grounds that (1) it fails to provide a core of common experience for the group; (2) the pupils may get insufficient practice in careful, accurate reading; and (3) the organization and logical structure of the subject matter may be obscured by interesting but largely immaterial details.

The trend of expert opinion in recent years has been to emphasize the importance of extensive reading, but not to the exclusion of intensive reading. In any teaching situation the desirable balance depends upon the nature of the subject, the ability and maturity of the pupils, and the availability of suitable reading materials. (See **READING, METHODS OF TEACHING.**) A.J.H.

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N. CORYELL, *An Evaluation of Intensive and Extensive Reading Methods* (Teachers College, Columbia University, 1937).

READING, EYE MOVEMENTS IN. As a person reads, his eyes move along a line of print in a succession of alternating quick movements and brief pauses. The pauses, which are called *fixations*, last only a fraction of a second each. The amount of

READING INTERESTS

print which a person can perceive during one fixation is called his *recognition span*. The quick movements between fixations are called *saccadic* movements. From the end of one line to the beginning of the next, the eyes make a rapid, continuous diagonal movement called a *return sweep*. *Regressions* or backward movements are usually the result of a need for re-reading, and are not made frequently by good readers.

As a child improves in reading, the average duration of his fixations decreases, his recognition span becomes wider, he makes fewer fixations and fewer regressions, and his rate increases. At the end of the first grade an average child makes about two and a half fixations to a word and makes a regression about every other word, reading at a rate of approximately a word a second. Improvement in these characteristics takes place rapidly during the first four grades and at a slower rate after that. A college student averages between one and two words to a fixation and makes about one regression a line, reading at a rate of about six words a second.

In oral reading, an effective reader's eyes stay a few words ahead of his voice, thus giving him a basis for proper phrasing and expression. The distance between the last word a person looks at and the word he is pronouncing is called his *eye-voice span*.

Eye-movements during reading can be accurately photographed with special cameras, in which a beam of light is reflected from each eye onto a continuously unrolling film. Such photographs allow an exact measurement of rate of reading, duration of fixations, etc., and also clearly reveal any irregularities that may be present in eye coordination. Less accurate but practically useful observations of eye-movements can be made by watching a person's eyes as he reads (through a small hole in the reading matter, across the top of the book, or in a mirror placed at an angle on the table.)

There has been a difference of opinion as to whether poor eye-movements are a cause of poor reading ability or whether they simply reflect the fact that the individual reads poorly. It has been amply demonstrated that the eye-movements of a good reader show marked temporary deterioration when he reads material that is very difficult for him. The implication is that the eye-movements

reflect rather than cause the reader's ease of comprehension. In remedial work in reading, major attention should be devoted to the improvement of comprehension and fluency rather than to the improvement of eye-movements as such.

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READING INTERESTS.

Although individual differences in reading interests are great at every age, the results of many surveys have demonstrated the existence of general trends about which there is marked agreement.

Children beginning to read enjoy short, fanciful stories involving talking animals, fairies, and other mythical creatures; they also like realistic stories about children, with elements of surprise and humor. Interest in the fanciful usually reaches its peak at about the age of eight and then gradually declines. Boys become absorbed in adventure and mystery tales, fictionalized history and biography, mechanics, science and invention, and material related to hobbies. Girls enjoy sentimental stories of home and school life and usually develop an interest in romantic fiction between the ages of eleven and fourteen. They share the boys' liking for mystery and adventure but usually do not care for reading related to science and invention; the boys, on the other hand, tend to ignore the human interest stories which are feminine favorites. Nearly all children enjoy comic strips and magazines, some of which meet reasonable standards, although others are definitely objectionable. There are frequently marked differences between what children want to read and what teachers and librarians recommend. Commonly the greatest quantity of voluntary reading is done at the ages of twelve and thirteen. The preponderant interest in fiction continues through the high school and college years but is influenced by increasing maturity of taste and by the broadening and individualization of interests. Bright children tend to read more, have a wider range of interests, and are usually a year or two ahead of the average child in interest maturity. The mentally slow child

reads less yet generally has preferences which are more mature than those of younger children of his mental level. The problems of providing material for the retarded reader which is easy enough and still suits his interests is a challenging one.

The reading interests of adults are greatly influenced by their educational and cultural background. Studies indicate that while nearly every adult reads newspapers, twenty per cent or more do not read magazines, and readers of books are in the minority. Of the books and magazines that are read, a large proportion are light and trashy fiction. Even among college graduates and groups of teachers, the amount of serious and thought-provoking reading is relatively small. The problem of developing lasting interests in worthwhile reading matter is a real challenge for education. (See READING, METHODS OF TEACHING.)

A.J.H.

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R. L. THORNDIKE, *A Comparative Study of Children's Reading Interests* (Teachers College, Columbia University, New York, 1941).

READING, METHODS OF TEACHING. Reading is a highly complex activity, involving a large number of skills that have to be learned. Essentially reading is a process of acquiring meanings from the printed page. For this to be successful, the reader must be able to recognize the printed equivalents of spoken words, to interpret their meanings, and to understand the thoughts expressed in sentences, paragraphs, and larger units. Subordinate to the problem of comprehension, but necessarily important, is the acquisition of delicate and complex eye-movement coordinations for the orderly inspection of printed material. As reading ability develops, the adaptation of basic reading skills to different purposes or motives for reading, and to the requirements set by different types of reading material, brings about a progres-

sive differentiation and refinement of reading habits and skills.

Improvement in reading ability depends upon the ability of the child to learn as well as upon the methods and materials of instruction; maturation is involved as well as learning. In the normal child a steady growth and development of skill in reading takes place as he advances in school. There is, therefore, little justification for abrupt changes in methodology as the child moves from grade to grade. For convenience, however, levels or stages in the instructional process may be distinguished. In the discussion to follow, a brief consideration will be given to the special instructional problems of five stages: preparation for reading, beginning reading, reading in the second and third grades, reading in the elementary grades, and reading in secondary school and college.

Preparation for Reading. Because of the increasing recognition of the importance of reading readiness (*q.v.*), children in most schools do not start formal reading activities at the very beginning of the first grade. The duration of the preparatory or pre-reading period may vary from only two or three weeks to as much as one or two terms for children who seem markedly deficient in phases of reading readiness. In schools with kindergartens, some of the preparatory work can be done before the first grade. Objectives of the preparatory period are detection and correction of physical defects; provision of varied experiences as a background for comprehension; vocabulary development and improved oral English through conversation, story-telling, and dramatization; improvement of perception of similarities and differences, both visual and auditory; development of ability to participate in group activities, pay attention, and follow directions; and arousal of an interest in reading and a desire to read. Some teachers use workbooks upon which reading readiness lessons may be built, while others prefer to develop their own materials.

During the preparatory period a gradual approach to reading is employed. Classroom objects and furniture are labelled. In many schools the children make up little stories about their own experiences, and these are printed by the teacher on the blackboard or

READING, METHODS OF TEACHING

on charts and are used as material for informal reading lessons. The teaching procedure with these charts is usually a story method, and accurate word recognition is expected. The use of experience charts as pre-book material, sometimes referred to as the *Experience Method*, has been criticized because of the likelihood of employing too extensive a vocabulary and providing too little repetition of important words. These are not insurmountable difficulties, and the excellent motivational value of the procedure has caused it to be widely used.

Reading Methods for Beginners. While each set of primary readers has its own variations in method, most of the numerous systems may be classified as belonging to one of a few major types. The *synthetic methods*, including the *Alphabet Method* and *Phonic and Phonetic Methods*, are those in which one starts with word parts and builds up from the parts to the whole; these methods are out of favor as introductory procedures. Methods currently favored are all *analytical methods*, in the sense that in all of them one starts with a meaningful unit—a story, a sentence, or a word—and works down to progressively smaller parts.

Alphabet Method. In the alphabet method of teaching reading, the child was first taught the names of the letters of the alphabet. After these were mastered, two-letter combinations like *ab*, *ac*, and *ad* were spelled and pronounced. The child then progressed to three-letter nonsense syllables, monosyllabic words, and longer words. This procedure, mechanical, uninteresting, and difficult for most children, has long been supplanted by better methods in American schools. It is less suitable in English than in languages in which the letter names and phonetic equivalents are nearly identical.

Phonic and Phonetic Methods. A phonic or phonetic method is one in which skill in word recognition is developed by starting with the sound values of the letters of the alphabet, and teaching the technique of blending or combining them to form words. Strictly speaking, phonetic methods employ a special alphabet or system of diacritical marks to indicate the sound value of each element, while phonic methods do not; this distinction, however, is frequently ignored and the

terms are used interchangeably by many writers.

Phonetic alphabets and diacritical marks have been out of favor for many years in basic reading instruction, largely because of the great variety of English sounds and the complexity of any set of symbols adequate to represent them. Systematic phonic methods have also fallen into disfavor for teaching beginners because they tend to emphasize the mechanics of reading at the expense of comprehension and promote habits of excessive vocalization which later interfere with the development of speed and fluency in silent reading. Phonics (*q.v.*) is generally taught as a supplementary rather than as a basic technique in word recognition.

Word Method. The word method, sometimes called the "look and say" method, is based on the psychologically correct idea that a word is not merely a collection of letters, but has a distinctive appearance and can be recognized and learned as a unit. The usual procedure is for the teacher to put a word on the blackboard, pronounce it, and have the class pronounce it. Obvious distinctive features of specific words may be introduced. After a few words have been introduced, they are combined in short sentences. The introduction of new words with pictures, followed by exercises in which words and pictures are matched, is a frequently used procedure. Added practice of this sort is provided in workbook exercises. Flash cards are commonly employed to develop speed and accuracy in recognition.

The value of flash cards in the development of speed and accuracy in the recognition of words and phrases has been for years a controversial issue. There is experimental evidence that skill acquired in flash card exercises may not carry over to the reading of the same words in connected material. If flash cards are used, this danger can be avoided in large part by following the flash card drill with connected reading containing the same words or phrases. For children whose word recognition is unduly slow, flash card practice is unquestionably helpful. In using flash cards, a cover card should be used, or a simple tachistoscope may be constructed. As with many other specific devices, flash cards have a definite but limited value in reading instruction; when their use is over-

emphasized, the net result may do more harm than good.

The word method makes it possible for a child to develop a reading vocabulary of sight words quickly and begin meaningful reading in a relatively short time. It does not give the child an independent method of attack upon new words and therefore should be supplemented with training in word analysis and phonics.

Sentence Method. The sentence method is based on the assumption that the sentence, rather than the single word, is the natural unit of thought. In a sentence method the teacher usually begins by printing a short sentence on the board or on a chart. The teacher reads it to the class and the class repeats it, individually and in unison. More sentences are introduced. Practice is given in arranging sentences in correct order and in matching sentences with pictures. The same words are re-arranged in different sentences and the separate words are pointed out. From that point on, the method is essentially the same as a word method.

Story Method. The story method starts with the teachers' reading a story, frequently one of a cumulative, repetitive type such as *The Little Red Hen*. In one variation, each sentence is thoroughly drilled in chart and blackboard lessons, so that when the children turn to the story in the book they can already read every sentence. This procedure differs little from a sentence method. In another variation, sometimes referred to as *story-memory method*, the children rehearse the story orally until they know it verbatim; then when they turn to the printed story they are expected to be able to identify each word because they know what word is supposed to come next. This procedure was devised as a means of teaching from primers which contained large vocabularies and introduced new words at a very rapid rate. The development of much easier reading material for beginners has made its elaborate procedure unnecessary.

Non-Oral Method. A program has been developed by McDade in Chicago in which the child is discouraged from engaging in any vocalization during reading. New words are introduced generally by means of pictures or pantomime. Silent reading is compulsory from the beginning. The theoretical

basis of the method is the assumption that oral reading introduces an unnecessary step into the reading process and serves to retard speed of reading. There is not at present enough published research at hand to justify conclusions about the effectiveness of this method as compared with other methods.

Intrinsic Method. In the intrinsic method, the child completes several lessons in a workbook or preparatory book before he starts the first story in a pre-primer. The words of the story are introduced in the preparatory exercises through the use of pictures, matching games, and other devices. It is expected that when the child reaches the story, he should know all the words and be able to read the story with ease. Much reliance is also placed upon context clues. "The setting for each new word should be carefully worked out so that the word is surrounded with such abundant and suggestive context clues that the pupil will be quite sure to figure it out promptly and correctly." Review is provided through comprehension tests which give additional practice on the vocabulary and also check up on the student's understanding of the story. Exercises for accuracy in word recognition emphasize visual discrimination rather than phonics. The method is adaptable to individualized instruction to the extent that the materials are self-teaching. The effectiveness of the whole method depends to a great degree upon the adequacy of the preparatory lessons.

Reading Materials for Beginners. Current first grade reading materials are very much alike, regardless of the specific method for which they are planned. A set of basal readers usually contains from one to three pre-primers, a primer, and a first reader. Correlated with these is a set of workbooks, the use of which is optional. Other optional materials include printed charts or giant books for group lessons and sentence, phrase, and word cards. Pre-primers are thin, paper-covered booklets, most of which are attractively illustrated and contain stories with elements of plot, surprise, and humor, written within the limitations of a much restricted vocabulary. New words are introduced at carefully spaced intervals and with much repetition. The primer, or first hard-cover book; and the first reader, intended for use in the second term of reading

instruction, continue to increase gradually the vocabulary started in the pre-primers. In many series there is a continuity of plot and characters from the first pre-primer through the first reader.

Differences in methodology show up much more clearly in the workbooks and other accessory teaching materials than in the basal readers. The presence or absence of preparatory exercises; the emphasis placed upon picture-sentence matching, picture-word matching, and other teaching devices; the space given to comprehension exercises; and the type of training given in word discrimination and phonics are the major points of differentiation. In nearly all cases some provision is made for beginning training in word analysis and phonics during the first grade—in some systems while the children are reading the primer, in others at the first reader level.

Whether it is better to follow one series through the first reader or to read a number of different kinds of books at each level is a debatable issue. The main argument for the former procedure is the continuity of vocabulary development provided. Those who favor wide reading at each level of difficulty frequently rely upon published studies of overlapping vocabulary to determine the sequence in which several pre-primers or several primers should be read.

Reading in the Second and Third Grades. In the second and third grades, continued systematic attention to the development of basic reading habits and skills is desirable. Training in the techniques of word analysis and phonics is provided to supplement the sight recognition approach usually emphasized in the first grade. By the end of the third grade, the child should be able to work out the pronunciation of most unfamiliar words without help. Oral reading has an important place in the instructional program but by the end of this period it is subordinate to silent reading. The basal reader is the core material for instruction in most schools but is supplemented by a wide variety of easy reading material. In many schools the supplementary reading is centered around units, projects, or activities. The development of a liking for reading and a desire to read independently is a major goal. Because of the extensive use of reading as a

tool of learning in the fourth grade and above, many schools make a concentrated effort in the third grade by means of remedial instruction to bring all the children to the point where they can read and comprehend fourth grade material.

Reading in the Intermediate Grades. By the fourth grade emphasis has shifted in most schools from "learning to read" to "reading to learn." Word recognition skills require less emphasis than before, but some practice in the use of the dictionary and in attacking polysyllabic words is needed. The development of reading vocabulary, both of a general literary kind and of the special vocabularies of the content subjects, is an important problem. Silent reading becomes considerably faster than oral reading and occupies most of the time spent on reading instruction. Training in the use of books and in the location of information in reference works deserves attention. The use of basal readers is continued through the elementary grades in many schools. In other schools, recreational reading is taken care of through extensive, individualized reading; and training in study-type reading is provided in planned sequences of reading lessons based on textbooks in the content subjects, or by the use of study-type readers or workbooks.

Reading in the Secondary School and College. It was formerly taken for granted that those who progressed beyond the elementary grades in the educational system knew how to read, and that no further attention needed to be given to instruction in reading. Many surveys have demonstrated that a large number of students are handicapped in their higher studies by inadequate reading ability, involving either a general marked retardation in reading or an inability to adapt their reading habits to the requirements of a specific subject. At a result, increasing attention is being given to the problems of reading in both secondary schools and colleges.

One manifestation of this interest has been the setting up of remedial reading programs and, in some cases, of remedial reading clinics. These programs, of course, take care only of those students who have recognized deficiencies. Other schools, particularly at the secondary school level, are conducting

experiments in the development of an "all-school reading program" in which every teacher of every subject is expected to be reading-minded, to watch for difficulties in reading, and to teach the special adaptations of reading that his subject requires. This trend is quite new and as yet all of these programs are in an experimental state.

Oral Reading. Years ago instruction in reading was predominantly oral. As greater prominence began to be given to the development of speed and comprehension in silent reading, the emphasis shifted so far in some schools that oral reading was almost entirely neglected above the first grade. The "non-oral" method of teaching beginners eliminates oral reading altogether.

The emphasis upon silent reading has tended to obscure the fact that there are important uses for oral reading, which include conveying information, relaying instructions in exact form, citing authority, and, most frequently, entertaining others. In addition to providing practice directed toward these goals, teachers find use for oral reading to analyze and correct deficiencies in such phases of reading as word recognition, phrasing, fluency, and expression; to improve oral English and use of the voice; and to develop ability to perform before an audience.

Oral lessons should be planned with specific objectives in mind, rather than used as a routine method of having the class read through a story. Useful oral reading procedures include individual reading to the teacher for diagnostic purposes, oral reading of answers to questions based on preceding silent reading, oral reading of carefully rehearsed material in an audience situation, and choral reading of rhythmic material. When one child is reading orally it is usually better for the others to be listening than for them to be reading the material silently.

Reading, Rate of. There is in general a substantial, but not very high, positive correlation between rate of reading and comprehension. While rate and comprehension tend to go together, there are enough cases of high comprehension and low rate, or high rate and low comprehension, to present special remedial problems. No really satisfactory rate norms have ever been established, mainly because the rate at which one reads varies markedly according to one's mind-set

and the difficulty of the material.

Speed is less important than comprehension and should not be emphasized until a thorough basis for good comprehension has been established. If there are deficiencies in word recognition skills, phrase reading, or comprehension of sentences or paragraphs, these should be attacked first. If comprehension is poor because of excessive speed, the individual should be informed that he is reading too quickly; frequent and thorough questioning should be used to check his understanding. When comprehension is adequate, the following simple program is usually satisfactory for improving rate of reading: (1) make the individual aware of the desirability of reading faster; (2) see that he reads a large amount of easy, interesting material; (3) measure rate and comprehension on similar material at frequent and regular intervals; (4) have the individual keep a graphic record of his own rate and comprehension scores; (5) set reasonable goals so as to prevent unreasonable hopes and consequent discouragement; and (6) since automatic transfer of training cannot be assumed, utilize varied types of practice materials. (See PHONICS; READING DISABILITY; READING, EXTENSIVE; READING, RECREATIONAL; READING VOCABULARY; STUDY; WORD ANALYSIS.)

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READING READINESS. The degree to which a child is capable of profiting from beginning instruction in reading is called his reading readiness. Lack of reading readiness may result from any of a number of deficiencies: the child may be normal for his age but too young for reading instruction; he may be generally slow in mental development; he may have a very narrow and limited range of experience because of

a restricted environment; his understanding and use of English may be deficient because of a foreign language background, excessive use of baby talk, or other reasons; he may have defective visual or auditory acuity; he may have poor perception for similarities and differences in word sounds or in visual symbols; he may be unable to adjust to a group situation, to follow directions, or to pay continuous attention; he may be emotionally unstable, extremely timid, or otherwise unable to make a satisfactory adjustment to the learning situation. Typically a child is deficient in readiness for reading is handicapped in several respects, not just in one.

Success or failure in school depends upon the rate of progress demanded, the methods and materials used, and the amount of individual assistance given, as well as upon the abilities of the child. It follows that no uniform standards can be established as minimum requirements for beginning reading instruction. In general, however, children who are at least six years old, of at least average intelligence, and not seriously handicapped usually make satisfactory progress in the first grade. The others are less likely to fail if their handicaps are investigated and corrected so far as is possible, and if they are introduced to reading at a rate considerably slower than that of a conventional first-grade program.

In selecting children who are likely to have difficulty in learning how to read, ratings by the kindergarten teacher, intelligence tests, and reading readiness tests are helpful. Reading readiness tests are tests suitable for use with kindergarten and first grade children, which measure aspects of intelligence and acquired knowledge that are important in reading.

It is recognized that the concept of readiness applies at higher levels of reading as well as at the beginning. As yet, however, little progress has been made in determining or measuring the essential criteria of readiness above the beginning level. (See *READING, METHODS OF TEACHING.*) A.J.H.

Reference.

M. L. HARRISON, *Reading Readiness*, Rev. Ed. (Houghton Mifflin, New York, 1939).

READING, RECREATIONAL. Recreational reading is reading which is done pri-

marily for personal enjoyment, with gains in knowledge or understanding of secondary importance. In the teaching of reading, recreational reading should be clearly distinguished from work-type reading or study. Each should have its own objectives and methods keyed to those objectives.

In recreational reading the teacher's main purpose is usually to follow and enjoy the plot of a story. Other motives may be to enjoy humor, to appreciate beauty of expression or excellence of description, or to view the world through the author's eyes. Important abilities that are required are facility in getting the general idea of a selection, ability to follow a related sequence of events, and understanding of the motives and emotional reactions of the characters.

Instruction in recreational reading which carries detailed analysis to the point where interest and enjoyment decrease, defeats its own major purpose. This is the central theme of many changes in the handling of recreational reading in the schools. It has shown itself in the following ways: (1) There has been a marked decrease in the "intensive study of the masterpiece." (2) The classics have lost ground to contemporary materials which have greater interest appeal. (3) The type of basal reader emphasizing literary selections has decreased in popularity. (4) There has been a marked increase in the use of various plans for individualized extensive recreational reading, for which the term *Free Reading* has been adopted. (See *READING, EXTENSIVE; READING, METHODS OF TEACHING; STUDY.*) A.J.H.

READING, REFERENCE—See *STUDY*.

READING, REMEDIAL—See *READING DISABILITY*.

READING VOCABULARY. The teaching of reading vocabulary has two aspects: the acquisition of ability to recognize or work out the pronunciation of a word, and the learning of concepts and word meanings. In the primary grades most new words that the child meets in reading are already familiar in meaning; the problem is one of discovering the pronunciation of the word. In the middle grades and above, the major vocabulary problem is the acquisition of meanings.

Many children acquire new word meanings

effortlessly and naturally by guessing at the meaning of a word from the sense or context of the sentence in which it is contained. If the child is skillful at this kind of guessing and reads widely, he will develop a wide and rich general vocabulary with little or no specific teaching. Poor readers who are not adept at guessing from the context and who do little voluntary reading cannot be expected to gain an adequate reading vocabulary in this way.

The conventional procedure of preceding the actual reading of a new selection by preliminary teaching of the new concepts and vocabulary is satisfactory in most teaching situations, provided that only a few essential words are taught at one time and that the meaning of each word is adequately developed. Incidental vocabulary teaching in which the pupils are expected to ask about unfamiliar words is more successful with good readers than with poor ones. If the number of essential new words is greater than the pupils can learn, the problem is primarily one of securing easier reading matter. This problem is particularly acute in the teaching of content subjects, where it is frequently difficult to get textbooks with a reasonable vocabulary load.

Teaching the use of the dictionary is an important phase of vocabulary instruction in the elementary grades. Most children benefit from specific lessons to develop speed and accuracy in the location of words in alphabetical order and in the interpretation of dictionary definitions. Motivation to use the dictionary is usually necessary; a vocabulary notebook or pack of individual word cards is helpful. Practice in finding synonyms, antonyms, homonyms, and in classifying words according to different kinds of relationships is of assistance in developing greater flexibility of vocabulary and greater precision of understanding.

There are available a number of vocabulary lists, representing the results of word counts totaling millions of words. These lists have been extensively used by the writers of books for children. They have been very helpful in encouraging the simplification of vocabulary in children's books and in bringing about a greater agreement on the words that should form the core vocabulary of basal readers and other school books. Among the

most widely used vocabulary lists are those by Thorndike, Gates, Horn, Buckingham and Dolch, Stone, and Durrell, and the technical vocabulary lists by Cole. (See READING, METHODS OF TEACHING; VOCABULARY ENRICHMENT.)

A.J.H.

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READING, WORK-TYPE—See STUDY.

REALIA. The use of actual objects, or *realia*, in the classroom has accompanied the move toward more concrete teaching. Realia help the pupils form a correct initial concept of the thing being taught.

The term is used most frequently in foreign language teaching and refers to materials of foreign origin—newspapers and magazines, travel posters, theatre and railway tickets, folk costumes, photographs, records, films, games, music, etc., as used in the classroom to make the instruction more lively, more real, and more interesting. As the social aspect of foreign language teaching is being emphasized more and more in integration with the linguistic aspect, the selection and the use of culturally significant materials are becoming a major concern of foreign language teachers. This concern is reflected in new courses of study evolved in recent years in Denver, in New York City, at the University of Chicago, and in the Stanford Language Arts Investigation. (See AUDIO-VISUAL AIDS; AUDITORY AIDS; FOREIGN LANGUAGES, TEACHING OF.)

W.H.H.

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W. V. KAULFERS, G. N. KEFAUVER, H. D. ROBERTS. *Foreign Languages and Cultures in American Education* (McGraw-Hill, New York, 1942).

REALISM. There is both a practical and a philosophical sense in which realism has been important in education. On the practical side realism usually comes into prominence when education has had a tendency to become overly abstract, bookish, or verbal. At such times the cry to make education more realistic usually means to give the concrete

and practical aspects of life a more central place in the learning process.

Historically and currently this sort of realism has taken three forms in the curriculum. First is humanistic realism. Here the curriculum remains literary but it is selected and taught with the current needs of society prominently in mind. Second is social realism. Here the curriculum does not discard literary studies but subordinates them to what can be learned first hand through direct social contact. To avoid narrowness this sort of education almost inescapably demands wide travel. Because it does, it is generally limited to the upper classes since only they are able to afford it. Third, and perhaps most important, is sense realism. The reality emphasized here is the physical world of fact known through the senses. Here the curriculum is made up largely of the sciences. In Germany a school with such emphasis was called a *realschule*. Furthermore, sense perception plays a large part in the learning process: witness the *Orbis Pictus* of Comenius (*q.v.*) and the object instruction of Petalozzi (*q.v.*).

From the philosophical side the resort to realism is usually an endeavor to found educational theory and practice on the most secure metaphysical base possible. The basic question here is, what is the truly real? The answer to this question is not unrelated to the foregoing contrast between the abstract and the concrete. In the nominalist-realist controversy, which occupied the forestage of medieval schools, it was the nominalists, not the realists, who claimed that reality was to be identified with the concrete and the particular. The realists of that period, on the other hand, contended that reality in its most durable form was to be found, not in the concrete and particular, but in the abstract and the universal. Since the former had so many "accidental" qualities subject to changes of time and place, it seemed obviously best to the realists to predicate education on those universal concepts which could be stated as true for all men in all times and in all places.

The same problem has also presented itself in epistemological form. Because idealists and pragmatists have been strongly guided by the usefulness of pupil's ideas and purposes, anxiety has arisen that education

would become so subjective as to lack any vertebrate character. Critics, calling themselves realists, have therefore come forward asserting that there is a world of concrete objective reality *independent* of the child's or teacher's mind and will to which education must conform if it is to be successful.

This account of realism would not be complete without a word about the part it played in Herbart's educational psychology. On the one hand Herbart (*q.v.*) posited that the world was composed of a plurality of "reals" and on the other that the individual's basic equipment to come in contact with these "reals" was not faculties but a rather colorless soul. Consequently, the individual developed, not according to some inner law, but by reacting to "reals" as they were "presented" to him from without. Earlier reactions were thought to persist as ideas and thus to influence through "apperception" later presentations.

J.S.B.

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REALSCHULE — See **REALISM**; **GERMANY, EDUCATION IN**.

REARRANGEMENT TEST—See **OBJECTIVE TESTS AND EXAMINATIONS**.

RECALL TEST—See **OBJECTIVE TESTS AND EXAMINATIONS**.

RECAPITULATION. The theory of recapitulation holds that there is a parallelism between individual and societal development so that at each stage of his development the child should study the culture of the corresponding epoch of societal evolution. By arranging the curriculum in a series of "culture epochs" the child would, in the course of his education, recapitulate the history of mankind. (See **CULTURE EPOCH THEORY**.)

Although the theory was popularized by the Herbartians (See **HERBART**), it was by no means original with them. Their interest in the theory grew largely out of the use they were able to make of it in the development of another theory, the theory of correlation. This theory called for the grouping of subjects so that their mutual similarities would facilitate learning through "appercep-

tion". This led to an attempt to "concentrate" the curriculum about a central core for each grade. But what should the different cores be and in what order should they be presented? The theory of recapitulation or culture epochs suggested a ready plan.

Some thought there were three, some five, and some even eight different epochs. Some made their divisions according to sociological, some according to psychological, and others according to economic principles. One of the most notable was that which marked the following divisions: (a) savage (b) nomadic (c) agricultural (d) domestic handicraft (e) industrial. Accordingly, there is a period when the child is a little savage and, however inconvenient, one through which he just must pass. During this period he will probably have an interest in hunting and fishing and stories like *Robinson Crusoe*. Similar illustrations can be made for other epochs.

The assumed soundness of this theory has been rested on various other disciplines. In the first place it has drawn strength from a philosophy of history. Whereas both rationalism and naturalism (*qq.v.*) had been individualistic and had attempted to shelve the old culture in favor of a fresh start, a new school of thought sprang up to emphasize the importance of the continuity of culture and the role the long past plays in bringing the individual to his present stage of development. From this it was but a step to state more explicitly the stages through which the individual passed in order to achieve self-realization. In the second place, when the theory of biological evolution appeared, this philosophy of history seemed to have scientific reinforcement. Finally, even greater scientific support seemed to attach to the theory of recapitulation with the discovery in embryology that the embryo in its gestatory period (ontogenesis) recapitulates the evolution of its species (phylogenesis).

Various criticisms have been levelled against the theory of recapitulation. Against its scientific support it has been pointed out that ontogenesis does not completely repeat phylogenesis. On the contrary, nature seems to make short cuts. Similarly, against its pedagogy it is stated to be wasteful, to say nothing of enormously time consuming, for a child to have to repeat the whole past of his race. Furthermore, there is the constant

educational danger of subordinating the present to the past just because it is the past.
J.S.B.

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RECESS. The school program for the pupils of the elementary school, especially in the lower grades, is often arranged to provide the children with at least two recreational or recess periods during the school day. The periods are generally set about midway between the opening of the school day and the noon lunch period, and midway between the lunch period and dismissal in the afternoon.

The purpose of the recess period is to give the pupils a chance to get physical exercise, or play activities, that will tend to bring about relaxation.

The length of the recess period varies somewhat in different schools and often in the different grade levels within a single school. Usually, the period of relaxation is longer for children in the primary grades than for the children in the intermediate and upper elementary grades. The period range is from ten to twenty minutes in most schools.

In the more progressive schools the formal set period known as "recess" has been abolished. The daily program for the pupil is a balanced one including rest, recreation and work. Each activity is followed when the needs of the children indicate it is necessary.
O.G.J.

RECIPROCAL CERTIFICATION — See CERTIFICATION OF TEACHERS.

RECITATION. The various interpretations of the term *recitation* have often led to considerable confusion among teachers over the application of the term. According to its etymology the term means re-citation of a learned lesson. Apparently the original application was just that—pupils re-cited to the teacher what had been studied previously, and the lesson period thus also became known as the recitation period, or simply the recitation. David Page in his *Theory and Practice of Teaching* (1847) used the term *recitation* synonymously with "reciting a lesson." The emphasis upon reciting led many teachers to use the recitation only for

RECITATION

that purpose, although good teachers in early days looked upon the recitation as a lesson period during which other activities, as well, were carried on.

With the spread of the Herbartian influence in this country (1860-1900) the term recitation was applied to the lesson period as a period of planned procedure under the teacher's direction. Here was the beginning of planning lessons as lesson-units. The McMurrys' *Method of the Recitation* (1897) set forth general methods of procedure to be used for lessons as learning-wholes, with the idea that such lessons might take more than one recitation period. It was the beginning of more flexibility in conducting recitations and also emphasized the idea of using the kinds of learning experience pupils needed to acquire desired outcomes. Type procedures, however, were stressed.

In consequence of these influences, teachers conceived the idea of planning lessons according to recitation patterns, which gave rise to the drill lesson, the inductive lesson, the deductive lesson, the appreciation lesson, etc., with emphasis upon certain types of experience. This was an attempt to improve classroom work by choosing and planning the learning experiences for certain ends. In his book *A Brief Course in the Teaching Process* (1911), Strayer included among other lesson types the "recitation lesson." The recitation advocated by Strayer was a distinct improvement over the older type of recitation, yet it embodied the concept of a lesson to be recited. In *The Recitation* (1911) Betts referred to the recitation as the "teachers' point of contact with his pupils" and stated that the three purposes of the recitation are testing, teaching, and drilling. He suggested different methods of securing pupil activity, such as the question-and-answer method, the topical method, the lecture method, and the written recitation. These illustrations show that the recitation still was thought of as a period for reciting or going over an assigned lesson.

From 1910 to 1920 several influences helped to bring about further changes in the methods of teaching and organizing classroom activities. Among these were (1) the increased emphasis upon individual differences and the ways of making suitable provision for variations in ability and interests,

(2) the recognition of the importance of the social setting as a factor in learning, (3) the stress placed on pupil purposing and pupil participation in planning and directing their own learning activities, and (4) the trend toward planning classroom activities in larger learning-wholes. The gradual influence of these ideas resulted in several radical departures from the traditional recitation type of procedure. Among these were the Dalton Plan (1919), the Winnetka Technique (1919), and the Morrison Unit Technique (1919) (*qq.v.*). There was at the same time renewed emphasis upon the project and problem-solving procedures (*qq.v.*). The use of the unit as a plan for organizing both subject matter and pupil experience and the use of the differentiated unit assignment to provide for individual difference can be traced to this period.

In spite of these influences many schools, both on the secondary and elementary levels, continued to use the traditional recitation technique with emphasis upon the topical and the question-and-answer methods of development. Because this traditional use of the recitation did not provide satisfactorily for pupil participation, many teachers tried making other provision for such activities. This gave rise to the so-called contribution or socialized recitation (*q.v.*). In general two types of the socialized recitation, the formal and the informal, have been used. The former designates a type of classroom organization in which the class is organized in imitation of some adult group, such as a city council, in order to study that organization and its work. The informal type includes all other socialized recitations in which the pupils participate in various ways in planning and carrying out the work of the class under the teacher's supervision.

Following the early 20's there was a rapid growth in the use of the unit both in curriculum construction and in the organization of classroom activities. The unit emphasized planning larger learning-units and making the daily classwork a series of successive steps in the development of the larger whole. The use of the longer unit and its emphasis upon learning experiences to fit the learning situation tended to bring into wider use a variety of procedures such as the discussion procedure, the developmental procedure,

practice activities, drill, lecturing and telling, lecture-demonstration, review, supervised study, etc. (*q.v.*). Teachers also made effective use of various pupil activities that belong to no particular type of procedure yet are essential learning experiences, including dramatization (*q.v.*), pupil reports, debates (*q.v.*), panel discussions (*q.v.*), pupil demonstrations, field trips (*q.v.*), etc.

In spite of the new emphasis upon longer units and the adaptation of learning experiences to fit the learning situation, investigations indicate that the majority of teachers of content subjects in both the elementary and the secondary schools are still thinking in terms of lessons to be studied, although the recitation as a pattern of procedure appears to be going out of use. However, a growing number of teachers are thinking in terms of the many kinds of essential pupil activities instead of types of lessons. Since the emphasis is increasingly upon practical learning experiences, the tendency is to drop the use of the term recitation except to indicate a period of classwork. T.M.R.

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RECITATION, SOCIALIZED—See **SOCIALIZED PROCEDURE**.

RECOGNITION SPAN—See **READING, EYE MOVEMENTS IN**.

RECOGNITION TEST—See **OBJECTIVE TESTS AND EXAMINATIONS**.

RECONSTRUCTION OF EXPERIENCE. The term was introduced by Dewey (*q.v.*) in his discussion of education as reconstruction of experience. To quote the definition in *Democracy and Education* (pp. 89 ff.), education "is that reconstruction or reorganization of experience which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience." What Dewey wished to call to attention is the fact that in any act of learning the learner is to some extent remade; he faces his next experience as a different person; he brings to it a new increment of

sensitivities, insight, feelings, habits which cause him to meet it as he would not before have done. The young child snapped at by a dog now sees a dog as something to be approached with caution—he sees new meanings in the dog; he can control his next experience with dogs more intelligently. He is thus remade; his experience has been reconstructed.

Recent psychological study definitely reinforces Dewey's conception and extends it. It is increasingly accepted that learning is not a mere process of accretion but is instead pervasive, reaching into all aspects of the organism. The organism learns as a whole. The child above is affected in his glandular reactions, his emotional responses, his understandings (of dogs, of what it means to be in a tight place), his physical skills (running, perhaps, or wielding a stick). But still further: the newer psychology is discussing reconstruction of experience when it stresses the fact that each instance of learning penetrates into all related past learnings and so entails, to greater or less extent, a reorganization of the organism's patterns, a new integration of his outlook and abilities and tendencies to behavior. Each instance of learning is thus continuous with and grows out of the learner's previous response patterns, but the process is not merely one of addition or summation. Old patterns must be remade to include the new. The child revises his relationship with dogs and also his relationships with other animals and with the human beings to whom he looks for security in a crisis; his quiver of fears is enlarged; his preferences change as to parts of town to visit hereafter; his outlook on life is accordingly modified.

Acceptance of this conception tends to carry with it acceptance of various implications: (1) that "learning" which does not affect subsequent living is of slight importance. Learning which is chiefly verbalization is accordingly discounted. For though ability to repeat a rule of grammar does in a sense change the child's approach to life, true reconstruction of his experience in this respect would be measured by his tendency to take account of the grammar in his ordinary speech. (2) stress on learning through meaningful experiences which the child can take active part in developing and through which

he can be helped to remake his behavior patterns fruitfully (e.g. learning science through working to improve community health, in contrast to learning chiefly from books). (3) recognition of the pervasiveness of learning inclines educators increasingly to include in their purview provision for the various types of responses being made by the child—emotional responses, attitudes, and outlook being formed, personality effects, physical effects, as well as the academic content. M.Y.O.

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RECORDS AND REPORTS. Records and reports have a close and intimate relation. In general the report becomes the vehicle for conveying information contained in the record. This relationship is well illustrated in records kept and in reports made by teachers relative to their pupils. Records of attendance, enrollment, and scholarship become the basis for making the teacher's monthly and annual reports to the principal or superintendent.

Records and reports may deal with pupils, teachers, other personnel, school property, or school finance. They may differ in that records tend to be permanent and reports temporary; records tend to be made by an individual or by an office for his or its own use whereas the report is made for the use of some other individual or office; records dealing with personnel tend to be individual while reports usually represent summary statements regarding groups of persons. These differences are not always clear cut; the "report to parents," for example, is individual.

Pupil accounting has many types of pupil records such as the school census record, the teacher's school register or class book, the principal's office record, and the pupil's cumulative record; these records are sometimes classified and constructed as physical records, standard test records, scholarship records, and the like. Reports to principals, superintendents, and the state and federal

offices are based upon the data contained in such records.

Records and reports are essential if a school system is to be managed for effective service to the pupils and at the same time without waste. Administrative officers of a school system need to know where and how school monies have been expended; they need to know what has happened to school equipment and supplies; and they need to know how effectively the hired personnel of the school system are performing. Unless records are kept and reports assembled, they do not have a clear picture of what is happening within their systems.

Administrative officers, principals, and teachers need to know the abilities, capacities, interests, and attitudes of the pupils they are trying to serve; they need also to know what progress these pupils are making while they are under the school's supervision. The only method of making sure that such data are available and usable is by the keeping of accurate records and the making of regular reports.

School records and reports to be effective must be developed in terms of specific purposes; if a given record aims at measuring pupil progress, all data that have no bearing upon this problem can be eliminated unless, at the same time this record is to serve other purposes. Such a careful analysis in terms of purposes will avoid the assembling of unneeded data; at the same time, it will guarantee the providing of other numerous data that are often ignored and that are essential to an adequate appraisal of pupil progress.

School records must be continuous and cumulative. Such records give an opportunity to compare achievement from year to year; they portray the growth of pupils, teachers, and other employed personnel; and they provide accurate data about the schools at any given date during the year.

Office Record Card. An office record card may be the record card maintained by the superintendent's office concerning his teachers, pupils, other employees, or material; or it may be the pupil record card maintained by the school principal's office. Of these, the principal's office record card is perhaps the more common; this card appears in various forms and sizes. A 4" by 6" card, filed in packets that permit the insertion of several cards, is used in Baltimore; many

RECORDS AND REPORTS

sizes are in use but the 5" by 8" and 8½" by 11" are the most common.

In place of a card, some school principals use sheets that fold and fit 5" by 8" card files; others use sheets 8½ by 11 inches on heavy bond paper; some use folders with items of information about pupils typed upon the folders; and still others use a manila folder with only the pupil's name typed upon it, into which are placed all kinds of cards, sheets, letters, and other materials about the pupil. This record provides permanent data concerning given pupils; it never leaves the school. If a child is enrolled in a given school for only 6 weeks, this record tells the facts concerning the pupil's school experiences during those 6 weeks. If a child attends 12 different schools during his 12 years in the public schools, there will be 12 principal's office records made out for him.

Such a record protects the pupils against loss of credit for work done in the school; this is its primary function. It may serve in small schools as the pupils' cumulative record as well as an office record; in such cases it is most useful in the school's guidance program. It enables the principal to inform himself quickly about given pupils who for various reasons may be called to his attention; this puts him in the position of answering quickly the many questions that flow constantly through his office relative to his pupils. It may become the basis for knowing the name, the family background, and past school success of each of his pupils; such knowledge may well be the means of decreasing disciplinary problems, adjusting the school's program to meet better the needs of its pupils, and improving school morale.

Cumulative Record Card. The cumulative record card is a recent addition to pupil records. Strictly speaking any pupil record card that is maintained permanently and has data added to it constantly so that all its information is correct as of any date is a cumulative card. In this sense, the modern continuous school census cards are cumulative, for such new data are added and old data are changed as is necessary to give us as correct a picture of the child as possible; the principal's office record is also, in this sense, a cumulative record.

The cumulative record card is beginning,

however, to take on a more restricted meaning; in this newer sense, it means a record card that follows the pupil, not only from school to school, but from teacher to teacher. Each new teacher adds to the record upon the basis of her contact with the pupil.

In non-departmental elementary schools, this means that each teacher has such a record card for each of the pupils in her class; she is responsible for keeping the record safely, adding pertinent data to it, bringing old data up-to-date, and passing it on to the pupil's next teacher. In departmental elementary schools, this record card is kept, used, and maintained by the homeroom teacher who passes it on to the pupil's next homeroom teacher. In secondary schools, this record is kept, used, and maintained by those teachers or administrative officials who are responsible for guidance; if the homeroom has been organized as the basic unit in the school's guidance program, then the homeroom teachers keep, use, and maintain this record card.

Present data seem to indicate that in 1908 Charles Lamprey, Principal of the Model School in Boston, was the first person to devise and use such a record card. He called it the "admission, discharge, and promotion card." It contained only a minimum amount of data. Similar forms were made a part of several commercial systems of pupil record forms during the next two or three decades. A more extensive record of this type was published in 1929; this took the form of a sheet to be used in a teacher's loose-leaf register; forms were prepared for both elementary and secondary schools; these forms were to follow the pupil from teacher to teacher and from school to school; they provided far more data about the pupil than did previous forms. Baltimore uses a "packet system" of 4" by 6" cards in place of the single card or the sheet; the State of Michigan uses a sheet that folds into a 5" by 8" folder as its pupils' cumulative record. Duplicates of cumulative records may be and often are used as the principal's office record as well.

Such a cumulative record permits the classroom teachers, the homeroom teachers, or the school officials responsible for guidance to have at hand complete data concerning their pupils. A third grade teacher, for example, would have on the opening day of school, or even several days before, information about the home life, play life, and school

life of every pupil in her class. She would have a report on the pupil's abilities, aptitudes, interests, and habits; she would be better able to work with her pupils in developing materials that would best meet their needs; she would not need to go to the office record card for specific data about her pupils; and she would be saved the task of re-collecting pupil data that previous teachers had already collected.

Reports to Parents. Reports to parents are statements that the public schools send periodically to parents showing how their children are progressing in their school work. These reports tend more and more to be based upon the pupil records that teachers keep. Originally these reports merely informed the parents of the "grades" made by their children. Later, there were added to this purpose certain other goals. The teacher was to be protected from undue criticism for failing pupils without informing the parents of the child's deficiency. The pupil was to be stimulated to do better work by knowing his "grades" and by knowing that his parents also knew them.

The preceding objectives are still dominating goals governing most reports sent to parents. Some educators, however, see other and, they believe, greater values attached to such periodic reporting. They believe that the report should be a means of bringing the home and the school into closer relations; they maintain that most criticisms that parents make concerning the schools are the result of misunderstandings and that these reports, carefully and adequately made, can be so informative that these misunderstandings can be largely eliminated. Secondly, educators see these reports as a means of stimulating pupil growth; they claim that, if the reports are properly made, pupils can turn to them for information about specific weaknesses as well as about specific strong points; they also claim that if these reports are properly managed teachers and pupils will be brought together in the task of diagnosing pupil abilities and in the work involved in interpreting these diagnoses. This pupil activity in connection with the making and using of these reports, it is insisted, makes possible real pupil growth. (See *ANEC-DOTAL BEHAVIOR JOURNAL*.)

The method of making these reports to

parents varies all the way from the use of a small card reporting just "grades" to the writing of a somewhat extended letter that describes in some detail the strengths and weaknesses of the student and that omits entirely the typical formal "grades." Current practice leans heavily in the direction of "grades" that are reported upon small formal cards. These "grades" are stated in terms of letters *A*, *B*, *C*, *D*, and *E*, or *F* where *E* or *F* represents failure. When one is familiar with the variability of "teacher marks" or "grades," the inadequacy of such reporting is apparent. A "grade" of *B*, for example, may be given by teacher *X* to the best pupil in his class and by teacher *Z* to the poorest pupil in his class; it is quite possible, moreover, that the pupil in *X*'s class might be the ablest pupil in the entire school and the one in *Z*'s class might be the poorest. Deficiencies in this method of reporting became apparent with the realization that, even if the grade *B* were properly given there is available no information as to why the pupil got a *B* instead of an *A* or why he got a *B* instead of a *C*. (See *STANDARDS OF ACHIEVEMENT*.)

Many school systems are attempting to correct some of these deficiencies by rating the pupil on effort, study habits, and various character traits; these additional "grades" give some general notion as to the causes of low or high grades. Other school systems make an analysis of the goals to be achieved in given courses as well as of the general goals being striven for by the school; the pupil then is rated or checked as satisfactory or unsatisfactory upon each, or upon as many of these goals as the teacher feels capable of rating. Other school systems write letters to parents when the pupils are in danger of failing and urge a conference; some write letters to the parents of pupils who are doing unusually good work as well as to the parents of pupils who are failing. These school systems retain the regular periodic report card as a part of their reporting procedure.

A few public schools are experimenting with the writing of letters and have abandoned the formal report card; these school systems are usually small. They usually plan a program for informing parents of the change and for giving the reasons for making this change. The so-called progressive schools

RECREATION

have led the way in the use of this type of report to parents.

Some of the problems faced in making this letter type of report are (1) providing the data necessary for writing such an intimate and detailed story of the pupil's progress; (2) avoiding stereotyped phrases and letters; (3) satisfying parents who are accustomed to thinking in terms of ratings of *A*, *B*, and *C*; (4) finding time to become well enough acquainted with the 30 to 40 pupils in each of 4 to 6 classes in a large public high school to write an informative letter about the pupil; and (5) finding the time to write these letters about each of these pupils.

Current tendencies in reporting to parents seem to be (1) less frequent reporting for all pupils; (2) more frequent reporting in cases of exceptionally good or exceptionally poor performances; (3) ratings on many more traits and abilities than formerly; (4) making the reports more and more descriptive; and (5) reporting data for the purpose of furthering pupil growth.

A.O.H.

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RECREATION. Recreation includes all activities that are satisfying and are engaged in for their own sake. In recreation the individual finds opportunity for self-expression; and from it he derives relaxation or enjoyment. Although he sometimes finds these also in his work, recreation is confined normally to leisure time. Because it affords outlets for the expression of personality and yields fundamental satisfactions, recreation needs little further justification; yet physical and mental health, good citizenship, safety, character, and neighborliness are its common by-products.

Because people often gain satisfying experiences from the same kinds of activity, the activities have come to be considered as forms of recreation. Essentially, however, recreation is the attitude characterizing participation in these activities.

Activities commonly considered as recreation may be grouped under several categories, each representing a major type of interest: active games and sports (low-organized games, athletics, and team games and sports); social activities (banquets, card games, parties, and socials); music activities (singing and instrumental playing, whether participated in or listened to); arts and crafts (a wide variety of activities using various media); theatre activities (varying from the presentation of informal dramatizations to the production of full-length plays and community pageants); dancing in its various forms; nature and outing activities (camping, excursions, gardening, and nature study); mental and linguistic activities (discussion clubs, creative writing, reading, and mental games); collecting and other hobbies; and service activities in connection with club, school, church, or playground.

Recreational activities cover the whole field of human interests. The forms in which people engage vary as widely as the interests of a single individual vary throughout his lifetime and as the interests of different people vary one from another. Beginning with the doll play of babyhood and continuing through the active games and sports of youth to the quiet pastimes of old age, the variety

of activities in which a person may engage for relaxation and pleasure is almost limitless. Yet in comparison with the difference in the recreation interests of a group of people, this diversity of an individual's interests is small.

The provision of recreational opportunities for all has become a matter of public concern. Recreational facilities and leadership are now provided at all levels by private organizations, by governmental agencies, and by commercial concerns. Schools, churches, and other social agencies are giving increasing attention to recreational activities. The neighborhood playground and the playfield are most essential because they serve the day-by-day needs of the people. Their usefulness is enhanced when they also provide indoor facilities, thus affording a combined indoor-outdoor recreation center. Often school grounds are developed as playgrounds or playfields, and school buildings commonly are opened for recreation use by community groups.

Competent leadership is as essential in the recreation program as in schoolwork. The chief purposes of play leadership of children are to fill the child's play hours with varied, attractive, creative activities, which foster the free expression of his play interests, and to conduct these activities so that every child is assured a happy and satisfying playtime. The chief function of recreation leadership for young people and adults is to draw out, strengthen, and put into action the leadership capacities inherent in members of the group. Through the widespread adoption of standards of experience and training for recreation positions and the establishment by colleges and universities of courses in recreation methods, activities, and administration, recreation leadership has progressed far on its way toward the attainment of professional status.

G.D.B.

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RECREATIONAL READING — See READING, RECREATIONAL.

RECRUITING—See STUDENT RECRUITING; TEACHER RECRUITING.

RED CROSS—See AMERICAN RED CROSS, EDUCATIONAL WORK OF.

REFERENCE READING—See STUDY.

REFLEX—See NERVOUS SYSTEM.

REFLEXOLOGY — See PSYCHOLOGY, SCHOOLS OF.

REFORMATORY SCHOOL. In almost any reformatory an educational program exists in name if not in fact. The educational offering in the reformatories of this country vary from practically nothing to well organized, comprehensive, and purposeful programs. The programs of excellence are comparatively rare. Programs of average quality are more numerous but those of less than average or of very poor quality predominate.

Obstacles which have retarded the development of reformatory educational programs include the following: inadequate knowledge of the educational process by administrative officials; institutional staffs selected through political patronage rather than for fitness; the traditional lack of interest and antagonism of the public toward offenders against the law; lack of financial resources and unenlightened penology. Reformatories for juveniles and young adults accept the educational process as an essential part of their programs much more readily than do prisons. However the majority of such institutions adhere closely to the outmoded patterns of the traditional public school. Nevertheless, reformatory programs are likely to be much poorer than public school programs.

Too often such institutions are truly the crime schools of fact as well as of fiction. It is believed by some who have studied the problem, that the reformatory system of the present day, which has changed little since its inception seventy-five years ago, is wholly inadequate for the purpose it is intended to serve. Comparatively, reformatories as a whole include better programs in all respects than do prisons. The kind of educational program envisioned in modern penology is more likely to be found in reformatories than in prisons for adults. All reformatories stress

REGENTS EXAMINATIONS

vocational education but very few of them give thought to the purposeful education of the whole individual. There is too much adherence to education in the formula form, and not enough effort to change antisocial or unsocial attitudes and habits of action. In many programs little if any attention is given to educational processes aimed toward the creation of a desire to change an unacceptable attitude—no thought of capitalizing individual social assets and eradication of liabilities.

The term "reform school" is usually applied to reformatories for juveniles. The educational programs in such institutions, while usually inferior to elementary school programs, aim to parallel them. Reform schools for juveniles usually contain nearly all of the defects of the reformatory for young adults and in addition some others characteristic of themselves. (See CORRECTIONAL EDUCATION, PRISON SCHOOL.)

W.M.W.

REGENTS EXAMINATIONS. The general control of public education in New York State is vested in the University of the State of New York, an administrative and supervisory body rather than a teaching institution, governed by a Board of Regents elected by the State Legislature. One of the principal ways of exercising supervisory control over the schools is by means of an extensive program of examinations, popularly known as the Regents Examinations. As early as 1865 preliminary examinations were inaugurated to provide a uniform standard of scholarship for admission to secondary schools. In 1878 a system of advanced examinations was established to serve a similar function for secondary school graduation and for college entrance. In recent years relatively less attention has been given to the enforcement of uniform standards and much more emphasis has been placed upon the diagnostic and guidance function of these examinations.

A State Examinations Board, consisting of five representatives of the colleges of the state, five school superintendents, five high school principals, and five ex-officio members of the State Department of Education constitute an advisory council to the Board of Regents on examinations. The actual preparation of the examinations to be used in

January and June of each year is by committees appointed by the council because of their special competence for this work. Each committee usually consists of one college representative, two or more high school representatives, and the State supervisor in that field. Each committee prepares tentative drafts of the examinations in its field from preliminary copies submitted by the individual members. These tentative drafts of the examinations are then submitted to the State Department of Education where they are subjected to critical editing and revision. Later these revised examinations come before a revision committee appointed by the State Examinations Board for final revision and approval. The objective questions are likely also to be given a preliminary try-out and the results analyzed statistically to determine whether they are of appropriate difficulty and whether they discriminate properly between good and poor pupils.

In spite of the fact that no pains have been spared to make the Regents Examinations a truly co-operative and democratic enterprise, many educators in the state, particularly in New York City, have in recent years become increasingly critical of these examinations. One serious indictment is that teachers often allow the passing of the Regents Examinations to overshadow other objectives of instruction and that in general these examinations tend to exert an unwholesome inhibiting effect upon local initiative. Teachers have objected, too, to the exaggerated emphasis focused upon the examinations and to the importance attached to coaching pupils to pass. School administrators are easily tempted into making the error of regarding the percentage of pupils passing as a convenient measure of the teacher's efficiency. This modified form of "payment by results" further restricts the teacher's influence over the selection of subject matter and inhibits more frequently than it should the teacher's readiness to explore new teaching and learning procedures. It is probable, however, that any injurious effects of the New York Regents Examinations are the inevitable accompaniment of any system of uniform examinations, no matter how they are prepared or administered. At any rate, the extent to which any impersonal system of supervision can take the place of direct personal contact with the

schools must still be regarded as a debatable question. C.C.R.

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REGIONAL GEOGRAPHY—See GEOGRAPHY, TEACHING OF.

REGIONAL LIBRARY—See LIBRARIES, PUBLIC.

REGISTRAR. The registrar in public schools and colleges is the officer responsible for the keeping of records and grades, supervision of admissions, registrations, class and room schedules, and pupil and teacher programming. In addition he has many other functions, including guidance and research. In some institutions, especially colleges and universities, he assists in the planning of curricular and educational policies. In the public schools the principal is usually responsible for registration. Frequently he is assisted by clerks and teachers trained for the work. In colleges the common practice is for a full-time officer to be employed as registrar or director of admissions. The duties of the registrar are more complex on the higher than on the elementary level of education because of the increased need for individual guidance and the greater choice of courses and subjects. J.E.G.

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REGRESSION (PSYCHOLOGY). In its broad connotation, *regression* refers to the adoption of primitive, infantile, or childish modes of feeling, thought, and behavior, particularly when the individual is faced by difficulties. It represents childish emotional and behavior survivals in older adolescents or adults. Instead of utilizing the method of careful, objective analysis and critical, controlled reasoning, the regressionist reverts to the behavior patterns that brought attention and success in early childhood, such as crying, whining, pouting, displaying

anger or sulkiness, pretending illness, or blaming others for his failures. In psychoanalytic literature, regression is given a special sexual significance. It denotes a retreat of the libido to infantile types of sex satisfaction and to infantile love-objects as a flight from difficulties.

The child may have become a victim of emotional infantilism or arrest of emotional development because of undue parental pampering, fixation, or dependence. The child thus fixated tends to persist in the feelings, thinking, and behavior patterns characteristic of early life. The motive for the regression escape usually operates unconsciously. According to the psychoanalysts, the unconscious motive defends the regressionist against intolerable situations by deluding him into believing that he is not slandering.

Emotional infantilism is a striking characteristic of many neurotics and criminals who employ regression techniques as defense mechanisms against their inadequacies.

The acquisition of regressive trends can be prevented by accustoming the child from early life to a realization that he is living in a real world in which results come as a consequence of effort; by leading him to realize that in the long run no success is genuinely satisfying except self-wrought success; by making each day an adventure in successful living; by avoiding overprotection; and by noticing and commending the child when he is engaging in desirable activities. J.E.W.W.

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REGRESSION (READING)—See READING, EYE MOVEMENTS IN.

REGRESSION (STATISTICS). In statistics, regression refers to the fact that as the scores or measurements increase in one variable (usually designated as *X*, the independent variable) there tends to be some corresponding increase in another variable (designated as *Y*, the dependent variable). Any regression at all immediately implies some correlation between *Y* and *X*. The

trend of the relationship between Y and X is usually continuous and is frequently describable in terms of some mathematical equation.

Linear Regression. The simplest of mathematical relationships or functions is a rectilinear one and the equation which describes it is known as a linear equation. In general terms, the equation of a straight line is $Y = a + bX$, in which a and b are constants for the particular line. The constant b is known as the *regression coefficient*, and it determines the *slope* of the line. If for a certain line $b = 5$, we know that for every unit increase in X the corresponding increase in Y is 5 units. If b were equal to -3 , we would know that for every unit increase in X there is a 3-unit *decrease* in Y . The algebraic sign of b , in other words, indicates whether the line slopes upward (positive correlation) or downward (negative correlation). In fact, b is related to the coefficient of correlation by

the relation $b = r \frac{\sigma_y}{\sigma_x}$, in which σ_x and σ_y

are standard deviations of the X and Y distributions, respectively. The coefficient a in the equation is merely a constant to allow for positions of the two means, M_x and M_y . It is given by the relation $a = M_y - bM_x$. When the correlation between X and Y is imperfect, as is usually the case, there is a second regression equation for the relation of X to Y . In order to avoid confusion, let this equation read $X = c + dY$. Now X is the dependent variable; we are interested in predicting the most probable X from any chosen value of Y , while in the other equation we were interested in predicting Y from

any chosen X . The coefficient $d = r \frac{\sigma_x}{\sigma_y}$,

and $c = M_x - dM_y$. The two regression equations when plotted on coordinates, will be found to describe two different *regression lines*, unless $r = +1.00$ or -1.00 . In this special case the two lines coincide.

Multiple Regression. Similar regression equations can be determined in the case of a multiple-correlation problem. The equation, for a four-variable problem, would read: $X_1 = a + b_2X_2 + b_3X_3 + b_4X_4$. X_1 stands for a score in the dependent variable, and X_2 , X_3 , and X_4 are scores in the

independent variables. The three b coefficients represent the weights to assign to the three scores in combining them. Knowing an individual's three scores in the independent-variable tests, by multiplying them into the corresponding regression weights and summing with a , the most probable score X_1 is estimated. The b coefficients are derived from the intercorrelations of the four variables and the standard deviations of those variables. (See CORRELATION.) J.P.G.

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REJECTED CHILD. A rejected child is one who is unwanted by its father, mother, or both. Although most parents are irritated by their children at times, there are some mothers and fathers who are hostile toward their offspring and refuse to take care of or be responsible for them. This rejection may occur at birth (especially if the child is illegitimate); and is illustrated by the refusal of mothers to nurse their infants, name them, or even see them. The father may reject the child if the mother dies at its birth, or if he has reason to doubt its paternity. Moreover, in some cases the child may be unwanted because of economic conditions, marital maladjustment, or because its care may interfere with a mother's social activities or career. The rejection of older children, also, may occur if either parent remarries and feels that the child is in the way.

Rejection is sometimes neither a deliberate nor a conscious process. The motives underlying the rejection may be rooted in the parent's own emotional life and may not be recognized or understood by the parent. Indeed, the parent may not realize that he is rejecting the youngster. Thus, the parent whose third child is a third girl may hesitate to admit the depth of his disappointment even to himself. Another parent, feeling emotionally insecure, may resent the adolescent whose intellectual development is so rapid as to emphasize the parent's mediocrity. On the other hand, a child may feel and react

like a rejected child when there is no realistic basis for his attitude.

The effect of rejection upon the child's personality and behavior may be serious, as shown by juvenile court and clinical records. Rejection may be the cause of aggressive and rebellious behavior, stealing, lying, truancy, and running away. These delinquencies represent the child's attempt to get attention as a substitute for the affection which is denied him.

Attitude therapy with parents is sometimes helpful, although changing the rejective attitude of parents and re-educating their children are often difficult. About all that can be done for rejected children is to give them responsibilities of which they are capable, together with a reasonable amount of attention, encouragement, and praise. In serious cases, foster parents may be the only solution.

F.K.M.

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RELATED INFORMATION. In vocational education at the secondary school level, curriculums may have three aspects: (1) shop, laboratory, or field work; (2) related instruction; and (3) non-vocational, general, or cultural instruction. In all-day industrial schools operating under the Smith-Hughes Act, the time devoted to each of the three may, for example, be in the following ratio: shopwork fifty per cent, related instruction thirty to thirty-five per cent, and nonvocational instruction fifteen to twenty per cent.

Each area of vocational education, namely, agricultural, homemaking, trade and industrial, and distributive education, has its special kinds of related knowledge. In trade and industrial education, *related mathematics*, *related science*, *related drawing*, and *related trade theory*, including *safety* and *accident prevention*, are the chief related subjects. These subjects are vocational if they are truly related to the particular vocation. To illustrate, algebra and geometry of the conven-

tional sort are not "related mathematics," whereas the latter may contain arithmetic, algebra, and other forms of mathematics that are selected on the basis of their direct applicability to the "practical" work of the vocation.

Teachers of vocational related subjects must have vocational certification. Their professional training helps to qualify them to select and organize "related instruction" or "related subjects" that function effectively in actual vocational experience.

F.T.S.

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RELEASED TIME—See RELIGION AND PUBLIC EDUCATION.

RELIABILITY. For every sample of persons used for purposes of generalization in educational research there is a larger "population" of which the sample constitutes only a part. For every "obtained" statistical measure there is a corresponding, theoretical "true" measure. For every educational test there is a body of content from which the much smaller body of test content is drawn. For every "obtained" score on a test there is a corresponding, theoretical "true" score. The sample *represents* the population from which it is drawn, the test content *represents* the larger body of content from which it is drawn, and the "obtained" measure or score *represents* the corresponding "true" measure or score. Reliability is concerned with the degree of conformance or divergence which exists between the "obtained" and the "true" results. The applications of the concept of reliability are numerous and varied. Among those of greatest significance are the reliability of a sample statistic, (mean, standard deviation, etc.), the reliability of a test, the reliability of a score, and the reliability of differences between measures.

RELIABILITY

Methods of determining the reliability of a sample statistic cannot be represented adequately here. The concept involved in each case is concerned with the amount by which the "true" measure may vary from the "obtained" measure and the likelihood that a variation is the result of chance factors.

Reliability of statistical measures. Let us assume that a group of pupils have been tested and the mean of their I.Q.'s determined. Let us assume, also, that the same test (or equivalent tests) is repeated with the same pupils (or with similar samples of pupils) one hundred times, thus yielding 100 means. The reliability of the mean measure for such a group is determined by the extent to which these means vary among themselves. The more reliable the mean, the less will be the variability. Complete or perfect reliability would mean that the arithmetic mean was always the same—never varied. The standard deviation and quartile deviation of such (presumed) distributions of means (or other statistical measures) are called *standard errors* and *probable errors*—the variation being regarded as a measure of lack of reliability or error.

It is important to distinguish between the standard deviation of a set of scores and the standard deviation of derived statistical measures (measures of central tendency, variability, correlation, and the like)—the former are usually called *standard deviations*, the latter *standard errors*. Since means (or other statistical measures) would be expected to vary only slightly, standard errors are generally much smaller than standard deviations. Formulas for standard errors of various statistical measures can be obtained in any standard text on statistics.

The standard error is in effect a standard deviation of a hypothetical distribution. Its interpretation is therefore the same as that for a standard deviation. For example, suppose the "true" mean for a set of measures is 80 units and the standard error of the mean is found, from the formula for the standard error of the mean, to be 1 unit. The interpretation of this fact is that if similar sets of data were obtained for say 100 similar groups, one would expect that 68 per cent of the means of the groups would be between 79 and 81, and virtually none of the means would be below 77 or above 83. Such a theo-

retical distribution of means is presumed to be normal. Another interpretation is that the chances that the true mean differs from the obtained mean by more than one point are 32 in 100. It should be noted that the actual characteristics of such a theoretical distribution of means (the true mean and the exact standard error) cannot, by the very nature of the case, be known. Therefore the known data are employed not to give the actual "true" value of the measure in question, but the probable or expected value in terms of the data available.

The probable error, the quartile deviation of the theoretical distribution of means (or other measures), is often used in place of the standard error as a measure of reliability. It is generally the practice to use standard errors for such measures as means and standard deviations, and probable errors for such measures as medians and quartile deviations. The reliability of a correlation coefficient has been almost universally given in terms of its probable error. Thus, a correlation coefficient which is given as $.91 \pm .02$, is interpreted as meaning that the chances are 50 in 100 that the true correlation is between .93 and .89 (.91 plus .02 and .91 minus .02). This interpretation assumes, however, a normal distribution of r 's and should be used only in the case of large samples.

The concept of reliability is particularly important in educational research since educational measurements are patently subject to the possibility of large error of sampling. Therefore, the interpretations of data must be in terms of a knowledge of the reliability of the data. The degree of reliability determines both the interpretation and the weight to be attached to them. When the mean of a distribution is determined, its standard error (especially when expressed in such meaningful units as months of age) indicates whether it is likely to differ by an amount that makes any use of it questionable.

When data are obtained for a group, it is often important to know how accurately the group represents the population from which it is drawn. The reliability of the sample is therefore of special significance. A particularly important use of reliability refers to the difference between groups. Many research studies compare two groups, for example, in determining the relative effectiveness of two

RELIEF TEACHER

methods of teaching. The reliability of such a difference is called its *statistical significance* (See SIGNIFICANT DIFFERENCE.)

Reliability of tests. Applied to tests, reliability refers to the consistency of measurement, or the degree to which the test measures whatever it does measure. As these statements imply, reliability is concerned with the self-relationship or internal consistency of the measuring instrument. Reliability is essential to, but not a guarantee of, validity in a test, for a valid test must be reliable, but a reliable test is not necessarily valid; i.e., a test cannot measure what it purports to measure unless it measures what it does measure, but a test can measure what it does measure without measuring what its user intends it to measure. (See VALIDITY.)

The *reliability coefficient*, which is merely a special application of the coefficient of correlation, is commonly used to estimate test reliability when the conditions necessary to its computation prevail. The coefficient of reliability is the correlation coefficient between the scores made by the same group of persons on two equivalent forms of the test successively and comparably administered. It is important that the equivalent forms of the test consist of items similarly chosen from the body of content and that score distributions for the two forms have closely similar measures of central tendency and variability. (See SELF-CORRELATION and SPEARMAN-BROWN PROPHECY FORMULA.)

The reliability coefficient is more useful in identifying poor tests than in selecting good tests, for a test of low reliability cannot possess satisfactory validity but a highly reliable test can, if improperly used, lack validity (*q.v.*) of adequate degree. A reliable and valid test of silent reading ability may be a reliable, but not valid, test of native intelligence. If this test is misused as an intelligence test, the children who get high scores on the test will continue to get high scores when equivalent forms of the test are used, but these scores may not represent the degree of native intelligence.

There are no definite quantitative criteria that can be applied to reliability coefficients to determine when they are adequately high, as test results have many and varied uses which demand varying minimum reliability

coefficients for the tests. For example, a test the results of which are used in individual evaluation should possess much greater reliability than a test the results of which are used for a survey of group achievement. Furthermore, since reliability coefficients depend upon the range of talent, it is impossible to say correctly that a test has a certain reliability coefficient. Rather the reliability of a test should be evaluated for a particular age group, grade group, or a group otherwise selected to represent a range of talent normal for the group to be tested.

Reliability of a score. Increasingly coming into use as a means of evaluating test reliability is a measure of reliability of a single score on a test. The standard error of measurement is obtained by use of the formula:

$$\text{S.D.m} = \text{S.D.} \sqrt{1 - r_{12}}$$

where S.D. is the standard deviation of the distribution of scores, r_{12} represents the reliability coefficient of the test, and S.D.m is the standard error of a single score. If this standard error is multiplied by three and the product is both added to and subtracted from a single score, the two results are, for practical purposes, the higher and lower limits of probability for the "true" score which the "obtained" score represents. The probable error of measurement, which is .6745 times the standard error of measurement, can be used for the same purpose with minor differences in the method of application. Although these two errors of measurement concepts are presumably not dependent upon the range of talent, their statement of results in terms of the unique scale unit used in the particular test somewhat reduces their ease of interpretation.

J.R.G. and C.C.P.

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RELIEF TEACHER. Relief teachers are employed by the school without being

RELIGION AND PUBLIC EDUCATION

assigned to a class of their own, so that they may be free to serve in the absence of regular teachers. Relief teachers usually serve at reduced pay. When not teaching, they often help regular teachers with individual pupils who need additional attention, visit and observe other teachers, and assist with clerical work. It is generally believed that the number of relief teachers should be approximately ten per cent of the total number of teachers. Some school systems do not employ relief teachers but rely on the use of *substitute teachers* who are engaged, often on a per diem basis, to take the classes of teachers who are absent.

D.H.C. and A.R.A.

RELIGION AND PUBLIC EDUCATION. Legal Status. The first amendment to the Constitution of the United States stipulates that "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof." This prohibition applies to the federal government, not to the states; the constitution contains no provision for protecting the citizens of the respective states in their religious liberties. As Justice Story wrote a century ago, "... the whole power over the subject of religion is left exclusively to the State governments, to be acted upon according to their own sense of justice and the State constitutions." (*Commentaries on the Constitution*, 5th ed., Section 1879.) The Supreme Court has upheld this policy, consistently refusing, for example, to render decisions on such problems as Bible reading in the public schools; it has maintained that such decisions, in the words of the Tenth Amendment, are "reserved to the States respectively or to the people." Practically every state, however, has established constitutional or statutory provisions which expressly prohibit sectarian instruction in the public schools, and in all states such prohibitions are either expressed or implied.

Arguments Against Religious Instruction in the Public Schools. Those who defend the secularization of our public school system point to history for the vindication of their viewpoint. Before the Revolutionary War ten of the British colonies had adopted state religions—seven the Anglican faith, three the Congregational faith. During and following the Revolution, however, state religions, religious tests, and public taxation for religious purposes were gradually abandoned;

by 1833 every state had adopted the principle of the separation of church and state. Upon this foundation was built a system of free, public, tax-supported, nonsectarian schools. Had another policy been followed, the argument runs, there would have been not one public school system in each state, but a number of denominational systems, each teaching its own doctrines and each competing with the others for a share of the public funds. The democratic school system based upon the principle of equal educational opportunity for all has been made possible in part by the secularization of the public educational institutions. The advocates of a secularized public school system deny that religion can be taught without a creedal emphasis. The many varying interpretations make it difficult to reduce them to the dimensions of the classroom. There is the Catholic and the Protestant, the Christian and the Jew, the orthodox and the unorthodox, the fundamentalist and the liberal, the sacramentarian and the evangelistic, the believer in God and the atheist. In view of this situation the teaching of religion in the public schools would engender bitter controversy. Moreover, to compel a pupil to listen to an interpretation contrary to his own religious beliefs would deprive him of his traditional right to religious freedom. Instruction in religion, this group insists, properly belongs not to the public educational institutions but to the home and the church.

Arguments For Religious Instruction in the Public Schools. Those who wish to see the public schools assume an active part in the religious instruction of children and youth contend, in the first place, that the development of virtue and the realization of a complete life, which is a life in God, are possibly only through religious education, and that the state should do everything within its power to facilitate such instruction. To remain aloof is to follow a philosophy of paganism. In the second place, they argue, the nation which secularizes its public schools is actually aiding the forces of irreligion. When a state refuses to use its schools to develop religious virtues, as Bishop John Lancaster Spalding, the Catholic educator, once wrote, "it fatally, though possibly unconsciously and negatively, commits itself to an irreligious and infidel propaganda; since to ignore reli-

RELIGION AND PUBLIC EDUCATION

gious doctrines while striving to develop the intellectual and moral faculties must result in gradual extinction of faith." (Merle Curti, *The Social Ideas of American Educators*, p. 358.)

Those who advocate religious education in the public schools point out, in the third place, that the Hebrew-Christian tradition has been basic in the formation of Western culture. No one who neglects the religious aspects, they argue, can hope to understand the history of Western civilization. Nor can it be ignored that the church is a vital institution in our society and, in this sense alone, is as worthy of study as the home, the school, the government, and the economic system. Finally, religious education is defended as a method of developing social consciousness. Through religion, individualism can be controlled and the brotherhood of man established.

Current Practices. In actual practice several expedients have been adopted in an effort to make school children more conscious of the importance of religion in their daily lives. The public schools, unable to conduct religious activities of a sectarian or doctrinal nature, have been limited (1) to elective courses in religious subjects, principally in Biblical literature, and (2) to Bible reading and devotional exercises at the opening of each school day. Many individuals have felt that these activities were hopelessly inadequate, and an increasing number of schools have followed the practice of (3) releasing pupils for a certain number of hours each week in order that they might receive religious instruction from the church of their own choice. Those who believe that religious education should be an integral part of all instruction have been dissatisfied with the "released-time" device; it is they who have been responsible for the establishment of full-time denominational schools.

(1) *Elective courses in Biblical literature.* Elective courses in Biblical literature are found in only a negligible number of the public schools. According to a study made by the United States Office of Education in 1938 such courses were limited in 1933-34 to 119 public schools located in seventeen states. There were 4,460 pupils enrolled in these courses. Only 539 of the boys and girls were in grades seven and eight; the remainder

were in high school. Approximately 70 per cent of the students were enrolled in full-year courses; the rest, including all of those electing the work in the seventh and eighth grades, were registered in half-year courses. Two-thirds of the public schools offering the elective courses were located in three states—Indiana, Iowa, and North Dakota; practically all of the other Bible courses were to be found in the schools of the southern states. It is obvious that the practice has not been popular. Those who wish to keep the public schools completely secular are not interested in Bible courses, while those who are eager to have the public schools take an active part in religious education do not believe that a study of the Bible merely as a literary record has much value.

(2) *Bible reading and devotional exercises.* Bible reading and devotional exercises at the opening of the school day must remain, like courses in Biblical literature, nonsectarian and nondoctrinal. But since the determination of what constitutes sectarian instruction is a problem which each state must decide for itself, this formula is difficult to apply. As a result the legal status of Bible reading varies widely among the forty-eight states. Figures released by the Office of Education in 1930 indicated that in twelve states, by court decisions, by opinions of attorneys general, by rulings of state superintendents of education, or by general consent, the reading of the Bible in public schools has been held to be unlawful. In eleven states and the District of Columbia Bible reading is required, in six it is specifically permitted, and in the remainder it is generally construed as permissible.

The provisions of the laws making Bible reading mandatory differ from state to state. In some cases the law stipulates the minimum number of verses that must be read—Delaware and New Jersey require five, Pennsylvania and Tennessee ten, Idaho from twelve to twenty, and Georgia at least one chapter. The Lord's Prayer must be repeated each day in the public schools of the District of Columbia and New Jersey. The Maine statute suggests that special emphasis be placed upon "the Ten Commandments, the Psalms of David, the Proverbs of Solomon, the Sermon on the Mount, and the Lord's Prayer." In Idaho the "standard American version of the Bible" must be used. New Jersey requires

RELIGION AND PUBLIC EDUCATION

that all readings be taken from the Old Testament. In Tennessee, teachers are not permitted to read the same chapter more than twice in any school session.

Several states provide penalties for failure to perform this duty. The first offense in Delaware is punishable by a fine of \$25, the second by a revocation of the teaching license. Kentucky also provides for the revocation of licenses, while the laws of Pennsylvania and Tennessee state that a teacher may be discharged for neglecting the devotional exercises.

Four laws—those of the District of Columbia, Florida, Idaho, and Maine—state that there shall be no sectarian or denominational comment by the teacher. The law of Idaho expressly states that when a pupil raises a question about any portion of the Bible reading the teacher must, without any comment, refer the child to his parents or guardian for the answer.

These are the legal provisions of only eleven states and the District of Columbia. It is difficult to say just how these regulations are observed in the classrooms of the states requiring or permitting Bible reading or devotional exercises. It is clear, however, that the practice of holding devotional exercises, where it exists at all, varies greatly from state to state. The advocates of religious education in the public schools find little over which to become enthusiastic in laws which permit merely the daily repeating of the Lord's Prayer and the reading of a few verses from the Bible. All too frequently such devotional exercises become mechanical and meaningless.

(3) *"Released-time" programs of religious education.* This situation has led to the "released-time" programs of religious instruction. The purpose of these programs is to supplement the secular work of the public schools, "to round out," as the Vermont Council of Churches expressed it, "a more satisfactory educational experience of the pupil by guiding him in a discovery and experience of the spiritual and Christian elements of life." Although there is considerable variation, the tendency is for the religious classes to meet one day each week during the school term for a period of approximately sixty minutes, usually the last hour of the school day. Pupils excused in most cases are

released from school usually only upon the written request of their parents to attend the religious class of their own choice. About 57 per cent of the classes are held in church or other buildings off the school grounds, 41 per cent are held in the school buildings, and the remainder divide their locations among the school buildings and other centers. Major emphasis in the curricula is upon Bible study, although character education, good citizenship, and church doctrine also receive a large amount of attention. According to a study published in 1941 by the United States Office of Education (from which these and the following data are taken) credit toward graduation was granted by 96 schools, while 140 institutions did not grant credit for the released-time work. There seems to be no fixed policy for dealing with those pupils who do not elect to take the courses in religion. Some continue their regular classes, others have study periods, engage in remedial work, make up back assignments, review previous lessons, do recreational reading, or receive instruction in morals, manners, ethics, and citizenship.

The released-time schools are organized and administered along three general lines. In most cases the individual churches of the community accept the responsibility for their own schools. A few of the released-time schools are run along cooperative lines, with an advisory council of all churches, but with each denomination providing its own curriculum and instructors. Many of the schools are run by an interdenominational council, which provides buildings, curriculum, and instructors for the pupils of all denominations. There are, of course, variations of all these administrative arrangements.

Teachers are secured in a number of different ways. The religious organizations appointed 59 per cent of those reported in the study made by the Office of Education; 37 per cent were appointed by religious organizations and approved by the local boards of education; and 4 per cent were appointed by public school officials. About 35 per cent of the teachers were paid; about 40 per cent were volunteers; and ministers and priests constituted the remainder.

The first released-time program appears to have been started in Gary, Indiana, in 1913. Since then this type of activity has become

RELIGION AND PUBLIC EDUCATION

increasingly popular. In 1940 there were more than 455 of these schools in all parts of the country. Returns from 357 of the schools showed an average attendance of 164,013 pupils, of whom four-fifths were from the elementary schools, one-fifth from the high schools. It is estimated that released-time programs are available for children in one of every eight towns or cities, with populations of 2,500 or more; in the smaller towns and rural areas this type of educational program is much less frequently encountered.

The released-time activities raise a number of perplexing legal questions which, in many states, remain partially or wholly unanswered. Do the laws prohibiting the use of school buildings and funds for sectarian instruction also prohibit the use of public school time? Does the practice violate the compulsory attendance laws which require attendance for the "full" or "entire" school day? May attendance upon religious instruction be coerced, directed, or supervised by public authorities? Can credit be given by the public schools for religious work done outside the school but on school time? Is it religious discrimination to release some pupils for religious instruction while others are retained for the remainder of the school day? In an effort to deal with this type of problem eight states have provided legislative authorization for the release of pupils during school hours. The released-time programs have been authorized in fifteen other states by rulings of the state attorneys general, by court decisions, or by opinions of the state boards of education or the chief school officials. In three states—California, Oregon, and Washington—the attorneys general have ruled against releasing pupils from regular school time. The laws of the remaining states are silent upon the subject.

There are many who believe that the released-time programs will put religion back into public education, making it a vital part of the child's daily experience. Once this is done, both the church and the public school will become more meaningful. These persons contend that this type of religious activity will help to improve all religious education because it will force greater attention upon curriculum, equipment, and teachers. They maintain also that through released-time activities the unchurched may be reached. (At present more than one-half of all the boys and girls

in the United States receive no religious instruction outside the home.)

Others do not accept these optimistic beliefs. They argue that released-time programs do not actually solve the problem, for religion is still not treated as an integral part of our culture. Nor can religious attitudes be developed in an educational program that operates for only an hour or so each week. Indeed, they insist that released-time activities are harmful. By focusing attention upon issues which divide men rather than on principles of conduct upon which there is general agreement, such activities accentuate differences, divide families in which religious differences exist, create dissent among children, and tend to arouse hatred and intolerance. For this reason, they contend, released-time programs of religious education are undemocratic. This group also rejects the idea that there should be an intimate relationship between the public schools and any kind of religion. The best solution to the problem of religious education, it is argued, is to reduce the length of the school day and dismiss all pupils, letting them decide what to do with this free time. Finally, the opponents of the released-time activities point out that the Supreme Court of the United States has maintained that there can be no determination of what is and what is not religious. As a consequence, where released-time programs are in effect, a pupil would have to be released from public school even if he chose to attend classes run by sects or organizations which were not accepted by the majority in the community.

(4) *Parochial schools.* Many believe that none of these solutions—elective courses in Biblical literature, devotional exercises and Bible reading, or released-time activities—is really adequate, but that religious instruction must be an integral part of all education. Moreover, each denomination tends to the belief that its interpretation of the Bible is the correct interpretation. As a result, those denominations which have been able to afford it have established their own systems of parochial schools. Nearly ten per cent of America's children and youth are today receiving their education in denominational schools. Although the vast majority of these boys and girls are Catholics, over a score of other religious denominations are conducting their own educational programs. There are some who object to the parochial school program

on the grounds (1) that it serves to emphasize the divisions in society and is, therefore, undemocratic, and (2) that a dual system of schools is both expensive and inefficient.

L.P.T.

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REMEDIAL INSTRUCTION. Teaching in such a way as to remove persistent difficulties in learning is known as *remedial instruction*. After the diagnostic steps have revealed the shortcomings and their causes, procedures are planned to correct the weaknesses with appropriate learning exercises. The nature of the difficulty must be understood, otherwise the remedial teaching may be merely a continuance of the original teaching and thus be ineffective. If the errors in learning result from failure to make certain associations habitual, drill may suffice to overcome them, but drill as the only remedial procedure generally proves unsuccessful because it usually does not modify causative factors. The learner as well as the teacher should know why the mistakes occur and how the remedial work will help to correct them.

Knowledge of the psychology of the learning process is essential for the teacher to plan effective remedial instruction. It has been shown, for example, that pupils make errors in an algebraic process, not because of lack of drill but because of lack of understanding or sense of mathematical operations. If the length of a rectangular field is given as x

yards and its width y yards, and the answer derived is $x+y$ yards for the area, the remedy is not more drill but the attempt to create an understanding of how areas are found and the formulation of the proper algebraic equation. Remedial teaching frequently requires building an experiential background so that learning by words or textbooks has meaning in the lives of young people. This concept of remedial teaching applies particularly to subjects based upon the objective world and its forces, such as physics, the social studies, botany, biology, nature study, mathematics, and symbolic representation in literature. Vocabulary building, right processes in reading, greater speed and accuracy in mathematical manipulation, correct use of grammar, better spelling, and facility in oral expression are common objectives of remedial teaching, but these objectives have basic psychological foundations which must be understood by the person giving the remedial instruction.

The common practice is for the regular classroom teacher to attempt to remedy the deficiencies displayed by her pupils. In some cases, special classes, such as classes in remedial reading (*q.v.*), are provided for deficient pupils and are taught by especially qualified teachers. Since diagnostic testing and remedial instruction are considered feasible in classroom teaching, there is a strong tendency to hold all teachers wholly or partly responsible for the correction of difficulties in learning.

Procedures for remedial work in the tool subjects have been developed, such as individual work books with self-corrected practice tests that are used in arithmetic and grammar, and flash cards that are employed for word recognition and reading span. These and similar devices can be worked out for the drill or near drill phases of subjects. In more complicated areas of learning, the teacher must reteach—on an individual or group basis—after a careful diagnosis of the intellectual, physical, emotional, and volitional causes of difficulties. In the final analysis, remedial teaching is differentiated and intensified instruction, with specific and well-defined objectives. (See DIAGNOSIS, EDUCATIONAL; READING DISABILITY.) F.A.B.

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REMEDIAL READING—See **READING DISABILITY**.

REPEATERS—See **PROMOTION**.

REPETITION—See **LEARNING**.

REPORT ROOM—See **HOME ROOM**.

REPORTS TO PARENTS — See **RECORDS AND REPORTS**.

REPRESSION. The psychoanalysts attach considerable importance to repression, which they look upon as the mechanism of psychological adjustment through which libidinal wishes, the urges to love and to aggressiveness, are forced into the unconscious mind when they are unacceptable to the ego and the super-ego. This resolves the conflict which may occur in a situation where intense fear develops with regard to the consequence of carrying out some wish. Repression is frequent in childhood where the weak ego of the child is unable to cope with the real or imagined consequences of some of his loves, hates, and aggressive wishes. Thus, at different stages of his development the child finds his love impulses restrained and frustrated. His love of his mother is frustrated by the attention the mother must of necessity give the father. This develops jealousy of the father but also fear of the consequences of this hostility. It is this hostility and fear of the consequences which leads to childhood repression. Some repressions are successful in that the repressions remain fairly dormant in the unconscious. In many cases, however, the conflict and the repressed energy are converted into psychic or organic disorders.

J.F.B.-2

RESEARCH, EDUCATIONAL. Efforts to define educational research are beset with difficulties. On the one hand, there is still considerable dissension as to whether education should be viewed as a science, a technology, or an art. On the other hand, there is the question of whether all careful study of a subject should be viewed as research, or whether to be known as research an investigation must conform to traditional canons of scientific procedure. When one views the several issues affecting definition, one is tempted to paraphrase the psychologist who remarked that psychology is that which psychologists choose to study, and to say that

educational research is that which educational researchers do. There is much merit in this apparently illogical approach, for educational research is not simply an abstract concept; it is a dynamic movement in contemporary education. The institution is the practical reality. It can best be described in terms of the interests, ideas, and behavior of its participants.

The ways in which educational and related cultural trends have developed since 1890 have had a marked influence on the research movement. The swift expansion of the whole enterprise of public education, with its involvement of more pupils, more teachers, more schools, more courses, more regulations, and more expenditures, was bound to awaken interest in a host of new problems. Industrial expansion, a broader national outlook, and changing philosophical and psychological theories resulted in strong pressures for a re-examination of educational theory and practice. The dominant note in the intellectual upheaval which marked the early years of the educational research movement was utilitarian and pragmatic in character. While in the 1880's there had been growing interest under G. Stanley Hall in child study and in biometrics as an essentially pure scientific field, the first sharply delineated trend in educational research stressed the determination of school efficiency by means of empirical surveys. The development of objective measures of school attainment and of learning capacity went hand in hand with the expansion of the survey movement. Laboratory and then school experimentation were used as instruments for increasing learning and teaching efficiency. Statistical methods were necessary adjuncts to surveys and experimental studies; the development of educational statistics further stimulated these investigations as did the numerous advances in techniques for devising measuring instruments. The acceptance of specifically utilitarian and supposedly objective and functional bases for evaluating and constructing curricula encouraged a multitude of curricular investigations, many of them utilizing counting devices of one sort or another. By 1925 the "objective, quantitative school" seemed to have conquered the field. Thousands of piecemeal, quantitative reports occupied the great majority of the pages of education publications.

The educational philosophers, however, never fully accepted the implications of the narrow quantitative-efficiency trend of thought. True, there were the die-hards of the pre-research school. But there were also the adherents of progressive education who saw in the cut-up approach to educational means and outcomes a violation of the principle of education as organic growth. They objected to the emphasis on measurable outcomes, holding that changes in the integration of the child's personality and in his capability for adaptation to new situations—both intangible—are more significant than specific modifications in skill and knowledge which are readily measured. The effect of the broader, dynamic influence is apparent in numerous evidences of a breaking down of the early attempt to ape the physical scientist in the application of research techniques. There is today greater recognition of the rôle of evaluative and synthetic thinking in educational research and fuller acceptance of the view that research method is not an iron-bound procedure but rather the refinement of the process of problem-solving. Consequently the methodology of research follows the nature and needs of the problem situation. Such a view welcomes the utilization of all techniques that are appropriately applied. It is only when one senses the many-sidedness of the problem of educational ends and means and seeks to integrate the diversified efforts of educational researchers that one can detect threads of orderliness in the apparent chaos of research endeavor.

Several additional features of the research movement in education merit mention. Research in education has been a relatively popular movement. Most of its contributors are not professional researchers. Only a small proportion of those who conduct studies ever carry on more than one or two investigations. Many research projects are conducted incidentally along with graduate professional study or regular teaching or administrative assignments. In fact, the research function is often found to be interwoven with such other functions as supervision, administration, and propaganda. The necessity for working with pupils and materials in regular school circumstances naturally tends to restrict freedom of research enterprise. Practical difficulties, limited financial support and personnel, and

the complexity of the really significant educational problems cause many of the studies to fall short of acceptable standards of dependability and usefulness. In spite of relatively wide participation by educational practitioners, there is a marked lag between research results and their application to practice. However the contemporary picture is noticeably brightened when one observes the marks of progress made since the inception of the research movement.

Especially encouraging has been the institution of cooperative research agencies and enterprises. Even where research continues to be done on an individual basis, cooperative efforts in the form of bibliographic aids and coordinated publications serve to improve the quality and enhance the utility of research studies. Notable instances of such sources are the *Review of Educational Research* and the *Encyclopedia of Educational Research*, both published under the auspices of the American Educational Research Association. These summarizing treatises help consolidate research advances, outline needed investigation, and prevent wasteful duplication of effort. The Yearbooks of the National Society for the Study of Education demonstrate how the work of leading educators can be coordinated in the study of the subjects selected for treatment in the annual volumes.

In recognition of the need for permanent organization and concerted effort, research bureaus have been established. A bureau of educational research has been defined as "a special corporation or definitely created subdivision of a school system, teacher-training institution, university, or state education department, organized for the purpose, first, of exercising functions of reference or investigation, second, of organizing and directing the investigational activities of others, or third, of serving both these purposes." In spite of their diversification, research bureaus have helped to bring a modicum of continuity and cumulative progress to the research movement, which had been generally marked, at first, by a lack of systematic planning and control. While on the one hand the bureaus represent a reaction against the inefficiency and futility of uncoordinated individual research effort, they have on the other hand fallen in line with the American conception of educational research as a popular movement among school personnel and have done

RESEARCH, EXPERIMENTAL

much to stimulate and direct individual initiative in research enterprises. (See RESEARCH, EXPERIMENTAL; SCIENTIFIC METHOD IN EDUCATION.) H.H.A.

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RESEARCH, EXPERIMENTAL. Reduced to its elements of methodology, experimental research refers to a procedure whereby the effects of specified factors are ascertained through control and measurement. In practice, the forms of experimentation have been diverse. Two major classes of experimental investigation are commonly referred to: laboratory studies and classroom or school experiments. The former, as contrasted with the latter, have had a somewhat longer history; tend to utilize fewer subjects, who frequently are adults; and entail stricter control and measurement, often utilizing especially designed apparatus. Outstanding groups of laboratory experiments have been made in the analysis of eye movements in reading, in the determination of the course and economy of learning, and in the description of animal drives and behavior. Ingenious investigators have more recently carried laboratory techniques into the realm of social behavior and personality.

The demand by practical educators that methods and principles be tested under normal working conditions precipitated a swing toward school experimentation in which experimental conditions, materials, and personnel were more representative of applicational situations. School experiments have ranged from minor variations in the presentation of a single lesson with a single class to fundamental methodological and curricular distinctions as applied over a period of years to entire schools or groups of schools.

The value of experimental research in education has been made the subject of interest-

ing speculation, as have the relative merits of laboratory versus classroom experimentation. There is wide agreement, however, that the application of experimental techniques by educators has been far from perfect but that a steady maturation process is apparent. At worst, the experimental movement in education has been a stimulating challenge; at best, it may become, as its early adherents hopefully claimed, the spearhead of the drive to achieve for education the dependability of thought.

Experimental Method. Experimental method involves an attempt to control all essential factors save certain variables which are manipulated with a view to determining and measuring the effect of their operation. The essence of experimentation lies in this actual manipulation of conditions and observation of consequent effects. It is probably the most powerful weapon of scientific method, its findings being subject to universal confirmation at will.

There are two general types of experimentation: one type stresses the importance of varying the essential conditions only one at a time ("law of the single variable"); the other emphasizes simultaneous variation of several factors ("factorial design"). The latter approach, introduced recently by R. A. Fisher, is presumed to yield increased efficiency and information and is beginning to attract considerable attention. The former approach is exemplified by the three patterns of experimentation introduced and popularized by W. A. McCall: the single-group, equivalent-groups, and rotation patterns. The publication of McCall's *How to Experiment in Education* opened the field for scientific experimentation in education.

The most feasible but usually the least valid plan of experimentation is the single-group pattern, which does not conform strictly to the definition of controlled experimentation. Essentially, it involves the administration of two or more experimental factors to the same group, each factor being preceded and followed by a test. The relative effectiveness of the experimental factors is judged by the size of the difference between the result of the test administered at the beginning of the experiment and the result of a comparable test administered at the end of the experiment. The major limitation of the single-group method is that it is frequently almost impos-

sible to disentangle the effect of the experimental factor from the effects of other concurrent factors. This limitation is obviated by the equivalent-groups pattern, which provides for experimental and control groups, thereby offering a basis for discounting the effects of factors other than the experimental factor. The control group is selected so as to be equivalent to the experimental group with respect to those traits that may influence the operation of the experimental factor. However, the danger involved in the equivalent-groups pattern is that the groups may not be equivalent, even with respect to the traits that are involved in the experiment. The rotation pattern surmounts the limitation of unequal groups by having two experimental groups and by applying each factor to each group in alternate order.

Factor design involves a complex, unsystematized rotation pattern. It breaks the experimental group into as many sub-groups as there are experimental factors, each group receiving each experimental factor in a purely randomized order, subject to certain minor restrictions. This design is specially adapted to the statistical treatment termed "analysis of variance". (See EQUATING GROUPS.)

H.G.

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RESEARCH LIBRARIES—See LIBRARIES, UNIVERSITY AND RESEARCH.

RESEARCH METHODS IN EDUCATION. Research methodology in education refers to the application and adaptation of the principles and procedures of scientific inquiry to problems of education. Certain of the tenets of general scientific method are applicable to education with little or no modification, but many of the concepts and techniques employed in other fields require adjustment to special circumstances when used in the educational area.

Aside from bibliographical reference and the use of such tools of research as statistical

analysis, there are four major types of research method: the descriptive, causal, evaluative, and constructive types.

As its name implies, the descriptive method serves to gather and to arrange data in meaningful contexts without seeking to ascertain cause and effect relationships, without evaluating the conditions revealed (as far as that is possible), and without constructing positive plans or programs. There are two aspects to the method: that of approaching or ascertaining the alleged facts, and that of arranging facts in significant patterns.

Educational data may be approached through five media: direct observation, testing, interviewing (*q.v.*), applying questionnaires (*q.v.*), and referring to written sources. Any or all of these may be employed in a single study. Often one approach is used as a check against another. Much has been written about the necessity for strict objectivity in the approach to data. Many attacks have been leveled against the use of the questionnaire and other approaches which seem to rely in large part upon subjective judgment. Some writers, recognizing the restrictions that would result from the use of objective data alone, have advocated the use of the relatively subjective data where the more objective methods either are not available or would not yield equally fruitful information.

The data gathered through the several fact-finding media may be arranged in any of a large numbers of patterns according to the purpose of the study. Chronological arrangement is, of course, common in historical studies. Comparison of age groups reveals genetic trends. Coordinate plottings of data may serve as the basis for predictive estimates. As long as causal relation, evaluation, or construction is not treated focally, an investigation may be regarded as descriptive regardless of the nature or intricacy of the organization of the data.

The line of demarcation between associative descriptive studies and causal research is very thin, but evident. To demonstrate that the graduates of High School A have been consistently superior in college to the graduates of High School B does not prove the superiority of the curriculum or methods of School A. The elimination of all other potentially influential factors would be required to demonstrate causal relation.

There are two general approaches to the study of causation; the experimental and the non-experimental. The experimental method (*q.v.*) entails the manipulation of conditions and the observation of the resultant effects. The non-experimental approach involves the determination of the degree of association among phenomena, reinforced by speculation concerning their mode and direction of operation. It is sometimes called the inferred causal method. This method attempts to determine the causes of observed effects, working from the effects backward. It is an equivalent groups experiment in reverse. Those factors which differentiate between the two groups are ordinarily studied further as possible causal factors. Where groups are not equivalent, adjustments are attempted in order to duplicate conditions necessary for fair comparisons. At times complex statistical analyses are applied in an effort to isolate causal factors.

It is generally agreed that an experimental comparison of two educational procedures may indicate what are the effects of each of the procedures. But the desirability of the several effects still has to be ascertained before one can determine which of the two means is to be preferred. Some writers have declared that this is a problem for the philosophy of education and not for scientific research. An opposing view holds that research, while utilizing objective, quantitative data as far as possible, cannot avoid the responsibility of applying to all significant problems the most dependable techniques available even though they may not be entirely objective. According to this view, evaluative problems and hence evaluative techniques fall within the province of educational research.

Although the evaluative method is necessarily subjective, in the hands of the careful research worker it exemplifies the controlled utilization of subjective judgment. Factors undergoing evaluation are carefully described, as is the setting or the frame of reference in which they are to operate. Criteria are explicitly stated and their rôle in the total evaluation indicated so that persons operating in terms of other criteria or emphases can readily bring their differences to bear in further study of the problem. Criteria, and the things to be evaluated are functionally analyzed to avoid vagueness and

generality. Specific judgments in the application of criteria are overtly reported. Provision is made for both differentiation and integration in the final judgment of value. (See also EVALUATION.)

As in the case of evaluation, issue has been raised as to whether applicational construction falls within the scope of educational research. The expression "scientific curriculum construction" has been widely used, but the context in which the term usually occurs connotes a descriptive rather than a constructive approach. The desire at one and the same time to remain within the confines of objective description and to make constructive recommendations has led to such incongruities as the attempt to build curricula principally or solely on the basis of frequency counts.

In fact, constructive research entails more than description, although reference to pertinent facts plays a significant role in this as in every type of research. Construction is essentially a cumulative and culminating process in which the findings of descriptive, causal, and evaluative investigation are utilized in building an integrated program. Prominent features of construction are the systematic search for and evaluation of suggested elements, and the synthesis of those elements which are acceptable.

The foregoing account of the basic methods of research would seem to imply that no list of clear-cut, mutually exclusive research procedures is available. That is precisely the case. One method flows into the other; most investigations of major scope entail the use of several methods. What holds the procedures together in any given project is the logic of the solution to the problem at hand. There is no substitute for sound reflective thinking. All that research methods signify is that thinking will be as systematic, unbiased, and factual as circumstances permit. (See RESEARCH, EDUCATIONAL.) H.H.A.

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RESERVE OFFICERS TRAINING CORPS—See MILITARY EDUCATION.

RESIDENCE REQUIREMENTS. *Residence requirements* refer to the length of time and the period one must attend a college or university in order to receive a degree from it. The almost universal practice on the part of colleges or universities is to require one year residence as a minimum, usually the last one before receiving the degree. Minimal residence requirements for professional degrees and for the doctorate are frequently more than one year.

Residence requirements limit the amount of nonresidential education that may be offered toward the degree. (Correspondence courses and completely independent study are examples of nonresidential education.) The institution awarding the degree can, and frequently does, test this work; however, although practice varies widely, only a small part of the degree requirements may be met by work done independently of an educational institution. In schools of recognized standing no credit for nonresidential work is given toward the professional degrees or the doctorate.

R.A.K.

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E. A. FITZPATRICK, "Residence Requirements for the Doctor's Degree", *Journal of Higher Education*, X: 381-388, October, 1939.

RESOURCE PEOPLE. Resource people is a term used to describe one of many approaches to systematic community study through the schools. The phrase is applied to those lay persons who (a) possess cultural backgrounds, special abilities, particular accomplishments, or other achievements which are of value and interest to school pupils, and who (b) are both willing and able to discuss, demonstrate, display, or otherwise personally present their attainments before a class or school assembly. Resource people are best utilized to provide serious and realistic educational experiences for pupils rather than only to interest or entertain them. The immigrant mother who sings old-world folk songs for the first grade, the fireman who stresses safety for the ten-year-olds, the editor who explains newspaper policies to a high school group, and the banker who discusses inflation before a college class are illustrative instances of resource people well utilized for purposes of significant and vitalized education.

If the resource person is to make his optimum contribution, both the speaker and the class should be prepared for the visit. The

consultant can develop his material more effectively if he knows beforehand the nature of the problem on which the class is at work, the progress the group has made in its study of the topic, and the areas in which help is needed. The students, too, should prepare in advance by summarizing the progress they have made in the solution of the problem and by formulating the kinds of questions on which they hope to secure help from the visitor. Following the interview, the group again should evaluate progress in the light of the contributions made to their study by the resource person consulted. (See COMMUNITY AND SCHOOL.)

E.G.O.

RETAIL SALES EDUCATION — See DISTRIBUTIVE EDUCATION.

RETARDATION—See PROMOTION.

RETESTING. The second administration of a test to a pupil after a lapse of time is referred to as retesting. Retesting is used when one wishes to obtain a measure of pupil improvement or consistency. In order to provide a more satisfactory means of measuring these qualities, two equivalent forms of the same test should be used, thus avoiding repetition of the same test items.

Two or more forms of a test are said to be *equivalent* when they are based upon the same material and contain items which are similar in type. When administered to the same group, the distribution of scores obtained should have equal means and equal variability.

When a second test consisting of exercises similar in type and difficulty is administered within a few days after a pupil has first been tested, the scores on the second test generally will be higher. This increase, which is due in large measure to the pupil's acquaintance with the type of test being used and his familiarity with the general conditions under which the testing takes place, is ordinarily referred to as *practice effect*. The effect of practice, then, is to introduce a constant error in test results. While the increase owing to practice effects varies from test to test, and in some types of tests has been found as high as ten per cent, in most cases previous practice is not likely to cause serious error in the scores obtained if a considerable time elapses between tests, unless there has been a definite attempt to coach the pupils involved.

RETIREMENT, TEACHERS' — REVIEW

The correlation between the results obtained through retesting, using either the same test twice or equivalent forms of a test, may be used as a measure of the reliability of the test. J.J.

RETIREMENT, TEACHERS' — See **TEACHERS' RETIREMENT.**

RETROGRESSION — See **REGRESSION (PSYCHOLOGY).**

REVERSALS. A reversal in reading or writing is an error involving a change from the correct order of symbols, or a confusion of symbols which are similar in shape but different in spatial position. Reversals may involve (1) confusion of single letters such as *p* and *q*, *b* and *d*; (2) partial reversals of words, such as *arm* for *ram*, or *blind* for *blind*; (3) complete reversals of words, such as *on* for *no*, *was* for *saw*; and (4) reversals in the order of words, as "The worm saw a bird" for "The bird saw a worm." Reversals may also be found in reading and writing of numbers. They are found in some but not all cases of reading and spelling disability. (Compare **STREPHOSYMBOLIA.**) A.J.H.

Reference.

A. I. GATES and C. C. BENNETT, *Reversal Tendencies in Reading* (Teachers College, Columbia University, New York, 1933).

REVIEW. Review is a teaching procedure which aims at helping students to get a new view or a richer understanding of relationships that have been studied. The students' initial study of a major topic is often incomplete and lacking in significant respects, and a review serves to round out the picture and emphasize the essential relationships.

Thus a class in economic geography which has been studying the rôle the railroad has played in the development of the United States may gain new insight into the significance of transportation by attempting to predict the effect that the extension of large scale air transport would have on the future importance of such cities as Chicago and New York. Review is not mere repetition or reteaching of the same material in the same manner. Review is reteaching only in the sense that it uses subject matter and skills that are familiar to the student, but it approaches his material from a different point

of view and involves student activities that should be as well motivated and as vital to the student as any in which he has engaged.

Review is a teaching procedure rather than a form of drill or a means of testing. Drill (*q.v.*) aims at improving retention by making certain responses automatic; review improves retention by broadening and clarifying the student's understanding. A mathematics teacher, for example, may drill on locus theorems in geometry by having the student do a number of simple exercises with a fixed time limit; he can review the locus theorems by helping the students to understand other applications of the principles than those which were used when the principles were first taught. In like manner, a review has some of the characteristics of a test. A well-conducted review often reveals mistaken points of view and other misunderstandings, but the primary purpose of the review is teaching, not testing. Reviews should not be confused with cramming, which is much like drill in its attempt to improve retention.

Review serves several important purposes: (1) It provides for a restatement and organization of what has been studied to assure understanding and fix important facts; (2) it provides for the unification of the work by helping pupils to see the larger wholes and relative values; (3) it gives pupils a broader perspective of what is being studied; (4) it provides an occasion for the use of supplementary material to make the work more vital and interesting; (5) it provides a foundation for new work that is to be introduced; (6) it helps the teacher discover weaknesses of pupils and enables him to provide for further teaching or remedial work; (7) it reveals weaknesses in teaching; and (8) it is a good means of giving pupils practice in thinking through problems and organizing the relationships being studied, as well as testing their ability to do this.

In planning reviews several factors should be considered—the frequency, the length of the review period, the selection of material to be reviewed, and the procedures to be used—factors that necessarily vary with the class and the subject. Many teachers use a brief "daily review." Although this short, frequent review may be used to advantage, it is apt to degenerate into simply a testing or a drill period. In practice, reviews are conducted

most frequently after the class has almost completed its study of a significant area of subject matter. Reviews vary in length from review questions that require only a part of a single classroom period for discussion and solution to projects that may take a week or more. Pupil participation is as important in reviews as it is in all other teaching procedures. Thus a cooperative review in which pupils and teacher work together to prepare an outline or a chart showing the important relationships that have been studied is better than the teacher-made outline which students are so often asked to copy. What distinguishes the review from other types of teaching procedures is its purpose rather than its form. Reviews may be conducted, therefore, by using such different procedures as pupil reports, discussion of new problems, lecture-demonstrations, panel discussions, projects, etc. When reviews are carefully planned they are an integral part of the term's work rather than separate appendages. Thus, having the students make practical applications of a principle they have studied is a review procedure, but it is also an essential part of the total learning experience. T.M.R.

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REVOLVING FUND — See FINANCE, SCHOOL.

RHO—See CORRELATION (STATISTICS).

RHODES SCHOLARSHIPS. The Rhodes Scholarships, established under the will of Cecil John Rhodes, the South African statesman and millionaire who died in 1902, were put into operation in 1904. The scheme provides for scholars from the United States, the British Dominions, and Germany to study at the University of Oxford. Approximately half of all the scholarships are allotted to the United States; there are for this country thirty-two appointments each year. The stipend is £400 per year; a scholar is appointed for two years in the first instance, but the

term may be, and usually is, extended for a third year. The selection of American Scholars is supervised by Dr. Frank Aydelotte, Director of the Institute for Advanced Study, Princeton, New Jersey, who has acted since 1918 as American Secretary to the Rhodes Trustees. Elections were suspended in 1939 for the duration of the war.

For the purpose of selecting Rhodes Scholars the country is divided into eight districts of six states each. There is a competition each year in every state. Each State Committee of Selection may choose not more than two candidates to appear before the District Committee. From the twelve men so nominated the District Committee selects four to represent their states at Oxford.

Candidates must not be younger than 19 nor older than 25, and must have completed the sophomore year in some recognized American college or university. In practice most Rhodes Scholars have received the A.B. degree before appointment. There is no requirement as to the subjects which a candidate must have studied and no restriction upon a Rhodes Scholar's choice of studies at Oxford.

There are about 1100 ex-Rhodes Scholars now living in the United States; they reside in every part of the country and follow a wide variety of occupations. The largest numbers are engaged in education, law, business, journalism (including radio broadcasting), government service, and the armed forces. American Rhodes Scholars have been notably successful in their different careers; many of them occupy positions of national importance; and the prestige of the Rhodes Scholarships has influenced the organization of reciprocal schemes bringing Englishmen to study in the universities of the United States. The purpose announced by Rhodes in establishing his system of scholarships was to ensure the peace of the world by bringing about closer understanding between young men of Great Britain and the British Dominions and those of the United States and Germany. If one takes the short view, it is clear that this purpose has not been fulfilled since the two greatest wars in history have been fought

since the Rhodes Scholarships were founded. But Rhodes did not take short views. In various letters he sets the period of a century or even two centuries as the time needed to give his Scholarships their full influence and effect. It will remain for the historian at the end of some such period to say the final word as to the truth of Rhodes' vision and the influence of his generosity upon the history of the modern world. (See also INTERNATIONAL SCHOLARSHIPS AND FELLOWSHIPS.) F.A.

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RHYTHM BANDS—See MUSIC APPRECIATION; MUSIC EDUCATION.

RIGGS FELLOWSHIPS—See SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

ROCKEFELLER FOUNDATION—See FOUNDATIONS, PHILANTHROPIC; SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL.

ROLLINS COLLEGE PROGRAM. For forty years prior to 1925, Rollins had been a small college of high scholastic rank serving largely ambitious Florida youths in search of education. It had been founded by the same Pilgrim group which had established most of the New England colleges and pioneered in many of the Western private education institutions. It was thus well born.

Like most colleges, it had fixed traditions of instruction based on the lecture and quiz method. Under this system, learning has been largely an act of memory. The instructor was the active party to the process while the student took notes and gave back the information in the examination.

As a matter of fact, people are educated by their own mental activity and not by that of

the instructor. It was on this belief that the Rollins Conference Plan of teaching, suggested by President Hamilton Holt, was based. By it the student is given the opportunity to take a larger and more active part in his own education. Every device is used to induce students to ask questions—to quiz the instructor. In this way the process of education becomes a joint adventure of teacher and student.

Classes are limited to twenty, to make possible a close, friendly relationship between professor and student. Frequent conferences and tests are held, making the final written examination unnecessary. Conferences are of two types: the group conference which takes the form of class discussions, and the individual conference, scheduled outside of class time, which functions as a tutorial.

Rollins believes that one of the pressing problems of our colleges is to discover and develop a technique for such contagious education. The world struggle has only emphasized the need to humanize college training, to develop the initiative which was a dominant characteristic of the early American way of living and achieving.

The Conference Plan is as old as the streets of Athens in the days of Socrates. Rollins, we believe, was the first institution in the United States to transfer all its teaching to this informal Conference Plan. The Plan is not a "system" of instruction, it is rather an educational ideal—a common goal toward which the faculty and students of Rollins have made steady and hopeful progress. It is not a panacea but a fresh point of view. It is the Socratic method brought down to date.

Because the Conference Plan is not a system it offers the instructor wide liberty depending on his subject. It also prevents his becoming dogmatic.

Now after 17 years the Conference Plan is an established tradition at Rollins. Its young graduates acquit themselves creditably in their jobs whether in business, teaching, or in the graduate schools of leading universities. They have initiative, self reliance and an achieving dynamic. Judged by both tangible and intangible results, the Conference Plan has greatly stimulated the large majority of Rollins students to become active agents in their own education, both while undergraduates and after graduation. It has served to

humanize education, and develop something of the spirit of adventure.

A second feature of the Rollins educational program has to do with the individualized curriculum. The Conference Plan individualizes the method of instruction. The individualized curriculum is an attempt to build a student's program around his capacities, talents and real needs. These capacities and needs are discovered as a result of three months of careful study, implemented by the use of nationally-standardized objective tests, frequent individual conferences, and a careful examination of his life before he came to Rollins. Then, with his cooperation, a plan of study is mapped out which seems best to fit his individual needs. Thus the student's work is individualized both in method and content, and it is clearly shown that all of the work he does in college is a means to an end of developing in him good judgment, the ability to think clearly, and a sound set of values.

The student body is divided into an Upper and Lower Division instead of the usual four-year classes. The arrangement of the curriculum is such that the emphasis is placed upon generalization in the Lower Division, and upon specialization in the Upper Division.

"Rollins Housing Plan" has been developed to assist in what President Hamilton Holt likes to call "an Experiment in Common Sense Education." The eighteen new buildings erected during President Holt's administration are all in colorful Mediterranean architecture.

Rollins is distinctly a college of cultural arts with notable departments of Music, Art, and Drama. Its vested choir of fifty student voices provides the music each Sunday for the Knowles Memorial Chapel. The annual Bach Festival with its chorus of 125 voices is also held in the Chapel.

The Department of Drama functions in the modern Annie Russell Theatre, and also in the Fred Stone Laboratory Theatre where it produces one-act plays written, directed and acted by the students.

The Department of Art in addition to its extensive Art Library, its studios for painting, sculpture, and the applied arts, now has the new Morse Gallery of Art for its own and visiting exhibitions.

The Rollins educational program aims to

develop the whole individual, to prepare him to take a place of leadership in whatever vocation he enters, and to accomplish this with as much freedom as is consistent with high standards of scholarship. (See LIBERAL ARTS COLLEGE.)

E.O.G.

ROMAN CATHOLIC EDUCATION.

Catholic education provides for the education of the whole man, "soul united to body in unity of nature, with all his faculties, natural and supernatural, such as right reason and revelation show him to be." The Catholic theory is that the effects of original sin—weakness of will and disorderly inclinations—must be corrected and good habits must be developed. This cannot be done by relying solely on the powers of human nature. The mind must be enlightened and the will strengthened by supernatural truth and the grace of God. This is the same as saying that Catholic philosophy of education is the philosophy of the supernatural; that is, it has not only a philosophical but a decidedly positive theological basis. The late Monsignor Edward A. Pace, at one time Vice-Rector of the Catholic University of America, expressed it rather well when he said: "Education may be defined as that form of social activity whereby, under the direction of mature minds and by the use of adequate means, the physical, intellectual, and moral powers of the immature being are so developed as to prepare him for the accomplishment of his life-work here and for the attainment of his eternal destiny." The student is to be prepared for life here and hereafter. "For precisely this reason, Christian education takes in the whole aggregate of human life, physical and spiritual, intellectual and moral, individual, domestic and social, not with a view of reducing it in any way, but in order to elevate, regulate and perfect it, in accordance with the example and teaching of Christ."³ In order to achieve the ends of Christian education, it is necessary that the entire program be dominated by the Christian spirit, so that religion may be "the foundation and crown of the youth's entire training at every level of instruction."

Elementary Schools. From its very beginning the Catholic Church in America has held to the belief that secular and religious instruction may be dissociated only with grave danger to faith and morals. The Third

ROMAN CATHOLIC EDUCATION

Plenary Council of Baltimore, which convened in 1884, devoted one-fourth of its decrees to various aspects of education. The legislation was definite in character and is still in force. It required a school to be built in each parish within two years, and compelled Catholic parents to send their children to parochial schools. Only the Bishop of the diocese could permit a Catholic parent to send his child to a public school. The decrees of the Third Plenary Council have been taken as authoritative and final and have been complied with within the limits set by the economic resources of American Catholics. The Catholic parent is also obliged by Canon Law, under pain of mortal sin, to patronize the Catholic school. The teachings of the Church on parental responsibility are expressed quite clearly and forcibly in the encyclical letter of Pius XI, *Christian Education of Youth*: "For the mere fact that a school gives some religious instruction (often extremely stinted), does not bring it into accord with the rights of the Church and of the Christian family, or make it a fit place for Catholic students."

In many instances, during the early period of development, pastors served as teachers of secular as well as religious subjects. Lay assistants helped to extend the offerings and in time formal school organization was possible. The teaching at the elementary level was often cared for in the early days by priests or lay teachers holding degrees from European universities. Religious intolerance and language handicaps compelled the hierarchy, especially during the high tide of immigration, to think in terms of "a school beside every church." Just as in the early days the missionary followed the explorer, so in a later period the teacher followed the missionary, especially after the Religious Communities of Europe turned to the New World to find greater opportunities of service. The leadership of the hierarchy, the zeal of the immigrant, and the devotion of the teaching Religious made the rapid multiplication of parochial schools possible.

The Third Plenary Council decrees influenced the growth of parochial schools, since many Catholics were dissatisfied with public schools and needed only such counsel to undertake the task of organizing a separate school system. Burns and Kohlbrenner show

that in 1883, the year preceding the Baltimore Council, there were 6,241 churches and 2,491 schools; that is, forty per cent of the churches reported schools. By 1933, the numbers had grown to 12,537 and 7,462 respectively, showing that sixty per cent of the parishes offered education at the elementary level. While this represents a twenty per cent increase during the fifty-year period (1883-1933) in the number of parishes with schools, it falls far short of the ideal set by the Baltimore Council—a parochial school near each church. Poverty, indifference, widely scattered Catholic groups and the shortage of religious teachers may be cited as some of the reasons for inability to achieve the ideal.

The elementary division of the Catholic school system includes three types of schools: parochial, private and institutional. The parochial school is controlled by a parish; a private school, by a religious order; and an institutional school, by a diocese, a religious order or a private foundation. Of the 7,944 Catholic elementary schools, 7,056 are parochial; 559, private; 329, institutional. Parochial schools are now functioning in every State and in each of the 112 dioceses. Episcopal jurisdictions, bearing the names of American cities, provide extensive facilities such as: Chicago, 398; Philadelphia, 334; New York, 281; Pittsburgh, 229; St. Louis, 222; Brooklyn, 216; Milwaukee, 200. The schools in most jurisdictions are administered by a school board and a diocesan superintendent of schools empowered to appoint teachers, approve the curriculum, supervise instruction, prepare reports, direct building programs, and promote public relations. The superintendent and the board are directly responsible to the bishop of the diocese, who in turn is entirely free to adopt policies and practices which fit the peculiar needs of the schools of his jurisdiction. In other words, each diocese is autonomous since there is no national head of the Catholic school system. The unifying principle is the philosophy of education to which all subscribe, since it promotes a common belief in the efficacy of religious instruction, obedience to episcopal authority, and sound principles and methods. This is especially evident in the uniformity in policy and practice characteristic of the 139 Religious Orders which supply the 50,876 sisters required to care for the instruction of 2,035,182 pupils in 7,944 elementary schools.

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To facilitate schedule-making, it is recommended that high-school principals, especially beginners, secure copies of former daily schedules of their schools and as much information as possible concerning the items already enumerated herein.

There are two general practices in schedule making, which are diametrically opposed to each other: (1) having pupils register from a more or less arbitrarily prearranged schedule, which is often the same in a given school, year after year, and (2) conducting a preliminary registration, or choice of subjects, and then making the schedule in terms of the pupils' choices. While the first method is more convenient administratively, it is generally considered undemocratic and poor administrative policy. The second method is the one recommended and followed by the better school administrators.

The preliminary registration should be made several weeks before the end of the first semester or the end of the school year. It is especially during this preliminary registration that the school should practice effective pupil guidance. Many school administrators require that the pupils' choice-of-subject blanks be signed by the parents.

Largely upon the basis of this preliminary registration and with other related facts in mind, the administrator sets himself to the task of preparing the daily schedule. There are at least two helpful mechanical aids that he can utilize. One of these is the schedule board, the form and size of which vary according to the needs and preferences of each school. The names of the various teachers, arranged alphabetically as a group or by department, are placed along one margin. The daily periods are placed in sequence along the other margin. Spaces or pockets are provided for the various proposed classes and activities sections. For these spaces or pockets there are prepared small movable cards or blocks having on them the names or sections of the different classes or activities. These can be shifted about on the schedule board to produce the best organization.

The second mechanical aid is the *conflict sheet*, which has the various subjects or activities listed in the same order on both margins. The sheet is ruled horizontally and vertically. At the proper intersections tallies are made from the pupils' choices in their preliminary registration. This procedure is time-consuming, but can be done by the clerical staff. The purpose of the sheet is to show at a glance what subjects will conflict with one another and the number of conflicts between any two subjects. Thus the scheduler, in his use of the schedule board, can determine from the conflict sheet what subjects it is unwise to plot in the same period of the day. This procedure will not remove all conflicts, but the number can be lessened. The three most general plans of building the daily schedule are the *block*, *mosaic*, and *combination methods*. The block method may be used where there are a sufficient number of pupils taking the same combination of subjects to provide for one or more sections of the various subjects. Such subjects may be omitted from the conflict-sheet tabulations and immediately inserted in the master schedule. The mosaic method involves the shifting of the cards or blocks on the master schedule to avoid the conflicts evident in the conflict sheet, and must be used for those pupils whose registrations make it impossible to use the block method. The combination method is the one generally used and, as its name implies, is a combination of the block and mosaic methods. In all these methods a certain amount of trial-and-error must be employed, although practice in schedule-making will tend to reduce it. The high-school principal will soon learn by experience certain short cuts in his work.

A few large schools make use of business machines such as the *Hollerith* for sorting and counting cards punched with the data from the pupils' preliminary registrations. The price of this equipment, however, is prohibitive for most schools. (See PROGRAM, W.R.F.F. DAILY.)

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found between school achievement and mental age are not very high, it has become customary to expect every child to "live up to his intelligence" in subject-matter achievement. This means that we expect him to reach a standard of achievement corresponding to the norm or average for his mental age. The concepts of *educational quotient* and *accomplishment ratio* have been introduced to describe whether the child does maintain such a level of achievement. (See EDUCATIONAL AGE.)

However, when correlations between intelligence and achievement in a particular subject are $+0.60$ and lower, accomplishment ratios will show a wide range both above and below 100. It is not fair, therefore, to expect all children to reach the mean school achievement for their mental age. Such an expectation signifies a belief that if all the children were properly motivated, they would all reach at least the level of achievement which is at present the average for their mental age. There is not enough justification for such an assumption. It is true that with better teaching the achievement norms for each age might be raised considerably, so considerably that the pupil who scores farthest below the norm at that time makes as high a score as the present average. However, if such an improvement were brought about, it would not necessarily mean that the range of achievement at any mental age level would decrease. The new norms would be higher but there might be the same number of E.Q.'s that did not correspond with the I.Q.'s. While better teaching should be expected to improve achievement, it would not follow that the correlation between intelligence and school achievement would be raised. However, it is important to bear in mind that even if one believes that the quality of a person's intelligence changes little throughout life, the fact that so many types of achievement have so low a correlation with intelligence means that there are other factors, many of them open to deliberate change, which also affect the standard of achievement.

Correlations between school achievement and intelligence are lower in high school than in the elementary school, and still lower in college. The decrease in the correlation with the level of schooling does not mean that intelligence counts for less at higher levels of

States to various European countries, and from one European or South American country to another. The Carnegie Corporation has likewise, without establishing any single uniform scheme, supported a large number of individuals whose plans made it necessary for them to go from one country to another for study and research.

The Institute of International Education, which administers the American Field Service Fellowships to France, supervises also a large number of appointments open to foreign students who wish to study in the United States or to American students who wish to study in some foreign country. Many of these fellowships are supported by small funds; others are individual exchanges. There are some twenty-five or thirty countries involved in these exchanges and the total number of students going in one direction or the other has in recent years varied between 6,000 and 9,000. (See also RHODES SCHOLARSHIPS.)

SCHOLASTIC ABILITY. Scholastic ability, as distinct from scholastic aptitude, indicates what can actually be achieved in school work, while the latter signifies what could be acquired with proper motivation and training. Theoretically, scholastic aptitude for all but the manual skills is supposed to be very closely correlated with intelligence. Actually, correlations between school achievement and I. Q. or mental age have not been found to be high. These correlations vary depending on the particular tests used, the particular subject-matter tested, and the particular groups tested. For example, correlations ranging from $+0.50$ to $+0.90$ have been found for different reading tests and intelligence. On the whole, the more verbal and abstract the subject-matter (e.g., reading and arithmetic reasoning), the higher the correlation with intelligence. The more concrete the task, the more it can be learned by rote, the more manual in nature (e.g., arithmetic computation and handwriting), the lower is the correlation with intelligence. One study found that among the same group of children the correlation between intelligence and the understanding of arithmetic was $+0.60$, while that of intelligence and arithmetic computation was $+0.35$, and that of intelligence and handwriting was only $+0.21$. In spite of the fact that the correlations

ROMAN CATHOLIC EDUCATION

others are recognized by the Catholic University of America. Approximately 1,000 teachers care for 8,500 students. About sixty per cent of the students attend only during the summer session (1940). The programs of these institutions closely parallel the offerings of state teachers' colleges. Provision is made, of course, for instruction in the content and methods of religion, Catholic philosophy, church history, and character education. The entire program is based on the Catholic philosophy of education.

Seminaries. Seminaries for training candidates for the priesthood are maintained by Religious Orders and Dioceses. The preparatory or minor seminary offers six years of training, two of which are at the college level—usually in the classics. It differs from the usual high school and junior college setup in that only students who wish to study for the sacred ministry are accepted. The principle of segregation recognizes the directive of the Third Plenary Council of Baltimore that candidates for the priesthood must observe certain regulations governing discipline, religious instruction and the program of studies. The entrance age is usually about 14. Eighteen of the eighty-three preparatory seminaries are controlled by diocesan clergy; sixty-five, by Religious Orders. Thirty-nine institutions train only members of Religious Orders; twenty-three train secular or diocesan priests, and twenty-one prepare students drawn from both groups. The instructional staffs include 750 religious order priests, 310 diocesan priests, and seventy lay instructors. Of the total number of 9,262 students, 3,266 are enrolled in college courses and 6,426 in the high school departments (1940).

The major or theological seminary provides instruction in the Sacred Sciences as prescribed by Canon Law. Theological studies must be preceded by two years of philosophy, sometimes taken in the preparatory seminary. Four years are given to the study of theology. There are seven major seminaries which have been in existence more than one hundred years, the largest and oldest, St. Mary's Seminary, Baltimore, having been founded in 1791. Of the ninety-eight major seminaries, fifty-nine train members of Religious Orders, twenty-five train diocesan or secular priests, and twelve prepare students drawn from both groups. Seventy-nine institutions, however,

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Colleges and Universities. In the early days, because of conditions which also influenced the development of non-sectarian institutions, little distinction was made between a college and a secondary school. Of the thirty-eight Catholic institutions of higher learning in existence by 1850, eighteen were chartered and five were known as universities. After 1850 there was a great increase in the number of colleges for men, so that by 1866 there were sixty institutions offering instruction. By 1936 the number had increased to seventy-eight, distributed from coast to coast and from the Canadian border to the Gulf of Mexico. The Society of Jesus controls twenty-four of these institutions, the Benedictine Fathers, thirteen; secular or diocesan clergy, nine; Brothers of the Christian Schools, five; Congregation of the Mission, four; and Congregation of the Holy Cross, four. The remaining institutions, nineteen in number, are controlled by thirteen different Religious organizations.

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RORSCHACH TEST

for women. In time, the offerings made a year or two of post-graduate work possible. Post-graduate students were admitted at St. Mary's Academy, Notre Dame, Indiana, as early as 1870. The first full four-year institution established was the College of Notre Dame of Maryland in 1895. Trinity College, Washington, D. C., founded in 1897 and opened in 1900, was the first to be founded as a complete college from the beginning. The rate of growth since the opening of the century has been quite rapid. Fourteen new institutions had been established by 1915. The number had increased to seventy-eight by 1926, and fourteen years later had reached the impressive total of 117.

Catholic higher education subscribes to the efficacy of prescribed studies and the theory of relative values in subject matter. The poor preparation of high school graduates has necessitated the gradual sacrifice of the classical ideal, so that today the classical languages, except in Jesuit institutions, are offered as electives. English, philosophy, science, and the social sciences account for the major portion of the instruction in liberal arts colleges for men. Religion is a required subject in every college. The curriculum of the women's college closely parallels that offered by the typical liberal arts college for men. Vocational subjects in late years have been given a place of greater prominence, such as secretarial studies, social service, education, and home economics. Art and music receive special attention in many institutions.

Fourteen institutions have university status, in the sense that they have a graduate school and an administrative officer responsible for the direction of graduate studies. They are as follows: Catholic University (Washington, D. C.); Creighton (Omaha); De Paul (Chicago); Detroit (Detroit); Duquesne (Pittsburgh); Fordham (New York); Georgetown (Washington, D. C.); Gonzaga (Spokane); Loyola (Chicago); Marquette (Milwaukee); Niagara (Niagara Falls); Notre Dame (South Bend); St. John's (Brooklyn); St. Louis (St. Louis). Not until the opening of the century did the university movement gain full momentum, six of the fourteen universities securing university charters since 1906. In nine of the universities, the professional students account for forty-three per cent of the total enrollment. More

than thirty-three per cent of the professional schools have been established since 1920. Of the professional schools conducted under Catholic auspices, 17 are schools of law; 15, business or commerce and finance; 9, nursing; 8, engineering; 7, dentistry; 6, education; 5, medicine and pharmacy; 3, social work or social service; 2, drama, music and journalism.

The total number of teachers in the 193 colleges and universities is 13,142. Of these, 6,525 or approximately 50 per cent are Religious and 6,617 or 50 per cent are lay. The total enrolment is 161,886. Of these, 47.3 per cent are men and 52.7 per cent, women.

F.M.C.

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RORSCHACH TEST. The Rorschach Test is a method of psychological analysis devised by a Swiss psychiatrist, Herman Rorschach (1882-1922), and refined and improved by the work of many of his followers. At the present writing, many psychologists consider it the best available method for the analysis of the structure of an individual's personality, while others are decidedly skeptical of the many claims made for the test.

The material consists of reproductions of ten standardized ink blots, some of which are colored. The subject is asked to tell what he sees in the blots, taking them one at a time. Great individual differences in reaction are found. The procedure is a "projective" one, in that the subject is presented with ambiguous, comparatively formless and meaningless material, and what he sees in the blots is a projection, or expression, of his own inner tendencies. It is different from most other

projective techniques in that the content of the description given by the subject is not the major criterion upon which the analysis of the responses is based.

Each response is scored in several ways: (1) for location, or the part of the blot used in the interpretation; (2) for determinants, or the qualities such as form, color, shading, and movement which may influence the interpretation; (3) for content, or the specific kind of thing seen; (4) for whole or detail responses, i.e., to what extent the subject interprets the blots as wholes or units, and to what extent he is concerned with parts as separate from the whole; and (5) for the commonness or variety of the responses (popularity or originality). Although scoring is to a large degree subjective, trained scorers usually agree very closely on the scoring for a whole record. The proper interpretation of a Rorschach record is a time-consuming and difficult task, requiring a thorough familiarity with clinical psychology as well as an extended period of training in the use of the test. The interpretation depends less on the number of responses of each kind than on the pattern of responses, and the balance among the various kinds of possible responses. An acquaintance with the typical "test profiles" of various clinical groups as reported in the research literature is essential.

The Rorschach test is being used at the present time mainly as a diagnostic instrument in psychological and psychiatric clinics and institutions, where it is often of value in making a differential diagnosis. Other uses are as an aid in vocational guidance and as a research instrument in making comparisons between clinically or culturally different groups. The standard method of administration is individual, the subject examining one card at a time and giving his responses orally. A method of group administration has been worked out recently in which the ink blots are reproduced on slides and projected onto a screen, with each subject writing his own responses. (See CHARACTER AND PERSONALITY TESTS.)

F.K.M.

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ROSENWALD FUND — See FOUNDATIONS, PHILANTHROPIC.

ROUSSEAU, JEAN J. (1712-1778).

Rousseau has been universally conceded to be an important figure in political philosophy, in the Romantic movement in literature, in child psychology, and in education. His educational significance was many-faceted, but the central core lay in his doctrine of *Naturalism* (q.v.).

The Naturalistic Conception of Education. The first half of the eighteenth century in European intellectual history was a period of rationalism. Voltaire, Diderot, and the Encyclopedists were its protagonists; rationalism—frigid, individualistic and aristocratic, was its test of the good, the true, and the beautiful.

Rousseau, writing in the second half of the century, strove to substitute for rationalism a set of values stressing faith in nature, and in the warmer, more deep-seated emotional processes. He gave "the first great boom to the human emotions."

It is probable that, like all perfervid reformers, Rousseau stated his naturalistic propositions with his tongue in his Genevan cheek. The balance between the claims of nature and of nurture needed to be righted; one way to accomplish this was to claim exclusive validity for "nature." The controversy between hereditarians and environmentalists, much more recent in educational history, illustrates the same proneness to hyperbole in trying to arrive at an acceptable mean.

The extreme naturalistic note is sounded in the opening sentence of Rousseau's *Emile*: "Everything is good as it comes from the hand of the author of nature; but everything degenerates in the hands of man."

From this premise, Rousseau draws several broad educational applications. The natural man is a doing, before he is a learning animal; hence early education according to nature should be without books and without didactic instruction. The senses should be trained in the presence of nature. The body should be toughened and inured, in which belief Rousseau was echoing the hardening process of Locke. In these, and like ways, education should be negative, which does not

mean that there should be no education, but means in Rousseau's paradox, that time should be gained by losing it.

Naturalism in its application to moral education led him to the theory of natural punishments; namely, the theory that the child should suffer the consequences of his own misdeeds without the positive intervention of adults. Vulnerable as this concept of moral education is—and commentators on Rousseau have been quick to attack it—it at least directed attention to the principle that personal resentment should be removed from all discipline, and that specific disciplinary measures should be selected and evaluated, wherever possible, in terms of cause and effect relation to acts.

Lines of Continuing Influence. Rousseau is one of those figures in whose case "contradiction's lightning shocks lose power." One of his major contributions has been to make the child and his nature the center of the educational process and not subject-matter as embalmed in school books. A second contribution has been to call attention again to the need for recognizing stages of maturation in child development, each with its own needs to be studied and understood. His own definition of these growth periods (birth to five, five to twelve, twelve to fifteen, fifteen to twenty) was undoubtedly too abrupt, but educational theory has never since lapsed into the dangerous assumption that a child of five is but a vest-pocket edition of a child of fifteen.

Rousseau's influence on France and by way of France on America was chiefly in the field of political philosophy. His influence on England was chiefly on the Romantic movement in literature. It was by way of Germanic Europe, through the work of Basedow and later *Philanthropists* that his educational influence passed into the nineteenth century stream of the Psychological Movement of which Pestalozzi, Herbart, and Froebel (*qq.v.*) were the protagonists. P.R.V.C.

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ROUTINIZATION OF CLASSROOM ACTIVITIES—See CLASS MANAGEMENT.

RURAL EDUCATION. The education which takes place in schools located in areas populated by 2,500 persons or less. This is the definition agreed upon by the United States Office of Education statisticians, writers, and administrators. The number of schools, teachers, and children thus included is considerable. According to the 1940 Report of the United States Office of Education 90 per cent of the 256,000 graded schools and 78 per cent of the 18,000 high schools are rural; and 53 per cent of the 63,348 public school teachers are from rural areas. Moreover, the rural schools are small. Of the number of graded schools 138,542 were built for one-teacher and 24,412 for two-teacher schools. Of approximately 50,000 schools in the United States built for not more than six teachers 60 per cent of these were one-teacher rural schools, and 82 per cent of them were taught by one or two teachers.

In addition to the small two-and three-teacher schools, other types serving rural children are village, town, and consolidated schools. (See CONSOLIDATION OF SCHOOLS.) The latter represent an interesting and significant development in rural education and constitute an effort to meet the inherent problems present in small schools. The consolidation movement of small rural schools into larger administrative units began as early as 1869 in Massachusetts, and the movement spread gradually if unevenly throughout all the states. In 1915-16 there were 5,000 consolidated schools; in 1935-36 the number had increased to 17,531. In order to make the consolidation of schools effective it has sometimes been necessary to transport children over great distances. In 1915-16 there were 525,000 rural children transported to consolidated schools; in 1935-36 this number had been increased to over three millions.

Approximately one half of the total child population in the United States lives in rural areas, but this proportion does not hold for adults. Of every 100 adults in the total population 40 live in rural, 60 in urban areas. Thus rural areas with almost 20 per cent smaller total population have a group of children to educate equal in size to that of the cities. In 1934-35 there were approximately twenty-seven million children enrolled in all

the public schools in continental United States; 48.8 per cent of these attended rural schools, and 16.0 per cent, one- and two-teacher schools.

According to recent studies, the teachers in rural schools are characterized by youthfulness, femininity, and low professional education. Poor salaries and the consequent mobility of the teachers prevail. According to a 1933 national survey of the education of teachers the median rural teacher of a small school was described as follows:

"The typical white teacher in the one- and two-room country school in 1930-31 was a young woman, unmarried, about twenty-four years of age, of farm or village background. Her education consisted of four years of high school and one year or more of professional preparation somewhat directed to rural-school needs. The experience of this typical rural teacher was 4-6 years during which time she had taught in two different rural schools. Her median annual salary in the fall of 1930 was \$788, but during the year she received a salary reduction of 10 per cent. She worked eight months out of twelve, teaching twenty to twenty-five children through eight grades of elementary curriculum and performing, especially during the depression, a considerable number of community and welfare services as well."

Rural schools are usually administered by a district or county superintendent of schools appointed by local boards or, more frequently, elected directly by vote of the people, though there is a modern trend toward the selection of such administrative officers by special boards on the basis of qualifications for the office. The county or the district superintendent of schools is usually responsible for the supervision of rural schools as well as for their administration.

The curriculum used in the rural schools is similar to that used in the urban schools with the exception of certain adaptations to the environment in which the school is located. This is particularly true in the fields of science and the social studies. In the rural high schools emphasis is likely to be placed on agriculture and home economics. A few states have issued courses of study which adapt the organization of curriculum materials to the rural schools. These are New York, New Jersey, Montana, North Dakota, Pennsylvania,

and, to some extent, Indiana.

Teaching procedures in the rural schools are similar to those used in urban schools, except when the schools have fewer than three teachers. The chief differentiation here lies in the field of organization. Children in rural schools are not classified along strictly graded lines, but are assigned to flexible groups. Individual and small-group guidance is, then, characteristic of the best instruction in these schools. Further devices frequently used to meet the problems of the one teacher handling many grades are alternation of subjects, the combination of curriculum materials, and the teaching of all the children as one group in certain subjects, especially in music, health, and sometimes in science and the social studies.

Several points of difference between rural and city schools are significant. In the main these are (1) the differences in environment which not only affect child development but also tend to differentiate the curriculum of the school; (2) the organization of the rural school which makes impossible the assignment of a teacher to a grade; (3) the mobility of teachers, which makes the rural-school experience a kind of apprenticeship for urban areas; (4) the lack of materials in books and other tools for teaching; (5) the inadequate supervision provided by county or district superintendents of schools because of the heavy burden of their administrative duties. (See COUNTY SCHOOL SYSTEM; DISTRICT SCHOOL SYSTEM; ONE-ROOM SCHOOL.)

K.V.W.

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RUSSELL SAGE FOUNDATION—See FOUNDATIONS, PHILANTHROPIC.

RUSSIA, EDUCATION IN—See UNION OF SOCIALIST SOVIET REPUBLICS, EDUCATION IN.

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SABBATICAL LEAVE. For the purposes of study, travel, rest, and other means of self-improvement, teachers and others of the school staff are sometimes granted a leave of absence with or without pay for a period not exceeding one year. The usual practice is the granting of this leave of absence on a seven-year cycle of employment. Many school districts now grant such leaves to teachers, supervisors, and administrators.² In the great majority of school systems in the United States the sabbatical leave is without pay.

Campbell reports that the most commonly used system of sabbatical leave in institutions of higher education grants leave to teachers of professional rank.¹ It is sometimes explicitly stated, and usually assumed, that the leave may not be used to enter the services of other institutions nor to engage in other remunerative employment. Many institutions require that the professor file a bond that he will remain in the institution one or more years after the leave. It is the almost unanimous belief among administrators that the sabbatical leave is a desirable practice.¹

In 1937 the Pennsylvania legislature passed a law to the effect that public school teachers who had taught in first-class school districts for ten years were entitled to a leave of absence for such purposes as health, study, or travel. The person on leave received the difference between his salary and that of the substitute up to \$800 for a half year or \$1,600 for a full year.³ Thereafter a leave was to be allowed for each seven years of service. This act put into effect throughout the state many privileges that had hitherto been restricted to relatively large and progressive cities.

The New York City Teachers Guild has a sabbatical-leave program that may serve somewhat as suggestive of an ideal program of sabbatical leave for teachers in the public schools. (In New York City the teacher or

supervisor on sabbatical leave receives his usual salary less the cost of the substitute teacher. An elementary school teacher who has taught long enough to receive the maximum salary is paid a little more than \$2,000 a year while on leave, and a senior high school teacher on maximum salary receives approximately \$2,750 while on sabbatical leave. Practically all teachers who are eligible for sabbatical leave receive the maximum salary for their position. Up to October 6, 1942, members of the school clerical staff, library assistants, and laboratory assistants also were eligible for sabbatical leave.) The program of the New York City Teachers Guild recommends that:

1. The first sabbatical leave should be granted after seven years of service instead of ten. (A sabbatical leave of absence is for one school term.)
2. A teacher who has served for thirty or more years and has had fewer than three sabbatical leaves may apply for an additional leave or two consecutive leaves.
3. Every teacher should receive as many sabbatical leaves as he is entitled to by his years of service divided by seven.
4. If an applicant has received an unsatisfactory rating because of his health, that rating should not stand in the way of his being granted a sabbatical leave.
5. A teacher who has been on sabbatical leave for restoration of health, and who has not received his maximum salary shall be permitted to meet his alertness study requirements within the three-year period following the termination of the leave.
6. A sabbatical leave or two consecutive leaves may be granted to teachers who have had fourteen years of service, not only for the purposes of health or study but also for travel or rest.
7. A teacher who has not been in the service for a full five-year period be-

fore applying for a sabbatical leave shall be granted a leave if it is warranted by the total number of years of actual teaching service. To a limited extent credit should be granted for evening school service and substitute service.

(See LEAVE OF ABSENCE.)

D.H.C. and A.R.A.

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SACCADIC MOVEMENTS—See **READING, EYE MOVEMENTS IN**.

SAFETY EDUCATION. Safety education is relatively new in the school curriculum. The reasons for this fact are varied. One, of prime importance, is that we have produced many devices and innovations, intended as benefits but possessing inherent dangers, much faster than we have perfected the techniques for meeting these dangers effectively. Various forms of high-speed transportation; the development of complex industrial machinery with emphasis on accelerated production; homes which now include a wider variety of conveniences but which, as in the case of numerous electrical devices, may also include greater potentialities for accident and fire—all these have appeared in a short span of years. Safety education is the attempt to overcome the lag between the appearance of such benefits and efficiency in their use.

It has been felt increasingly among thoughtful persons deeply concerned with this problem that our society has been paying too high a price for its apparent benefits. With the annual average loss of nearly 100,000 persons, including 34,000 killed in motor vehicle accidents, 32,000 in the home, 17,000 in occupations, and 15,000 in other public accidents; with 9,000,000 persons receiving disabling injuries in a single year; and with the annual economic loss alone computed conservatively at \$3,000,000,000, there can be

little doubt that here is a problem needing for its solution the best of our educational resources. World War I saw an acceleration in the initiation of safety programs, and World War II may well provide the final convincing proof that we have both an unnecessary and a largely avoidable depletion of human and material resources.

Definitions. Safety education is usually defined as that kind of education which teaches us to "avoid the common hazards of life that are avoidable and to face bravely those which cannot be avoided." (American Association of School Administrators, *Eighteenth Yearbook*, Safety Education, Chapter 1, 1940) Albert W. Whitney points out that "safety has a negative side, to be sure, but this is balanced by a positive side of equal significance. We are to be saved from something, but only in order to be saved for something else." Thus safety substitutes good adventures for bad. It tends to eliminate the dull, stupid accidents of life so that one can go on to the more interesting, purposeful, yet perhaps more dangerous, adventures. Safety education, therefore, attempts to provide for an ordered world. It shows how one can be master of his environment by being able to control many of the forces in the physical world that might tend to be hazardous. To illustrate: Fire can be very dangerous, but at the same time can be controlled. The individual who knows the common causes of fires, how they can be prevented and how extinguished, and who has developed good practices and attitudes toward fire hazards is much less likely to be involved in accidents resulting from fires. The educated person thereby knows of the various hazards and develops safe practices and attitudes with regard to them.

The School Program. Safety education is now generally accepted by school people and the public as a proper and necessary responsibility of the school. This was formally expressed in the *Eighteenth Yearbook* of the American Association of School Administrators. "It is the responsibility of the school to contribute as largely as it can to happy and useful living. If we confine our work to preparing children to do better those things which they will do anyway, we had better help them plan their accomplishment free from destructive encounters with pails of scalding

SAFETY EDUCATION

water, high tension wires, onrushing automobiles, and unwary pedestrians."

Safety instruction begins in the kindergarten and extends through the senior high school. It is also included in colleges, especially those concerned with the training of teachers, engineers, and others in safety services. Current practices reveal two major types of organization: (1) integration of safety education with many other school subjects and activities, and (2) safety education as a separate subject. Both methods are used and many schools use a combination of the two. In the elementary schools safety education is taught as a part of reading, the social studies, science, and health education.

In general, it has been found best to stress the accident hazards by seasons, such as firearms, fires, and home dangers in the autumn months; coasting and skating in the winter; swimming, water, play, and recreational hazards in the spring. Many schools feature one phase of safety each month; others build their program around the common activities of children, i.e., roller skating, coasting, kite flying, and the like.

In the high schools, safety has been taught for many years in connection with the social sciences and natural sciences, especially general science, biology, physics, chemistry, and community civics. The good chemistry teacher naturally emphasizes the dangers of chemicals used in the laboratory and in industry. Certainly, instruction that tends to prevent accidents and reduce property loss is of basic value. There is little doubt, for example, that fire-prevention lessons have contributed greatly to the reduction of preventable fires.

In the past there has been a tendency to overemphasize traffic safety at the expense of other less spectacular but nonetheless hazardous fields. The complete school program should include all fields of safety and should be set up following a study of the nature and frequency of accidents in the school and in the community. There has also been a tendency on the part of teachers to depend too much upon less valuable methods of instruction, such as the use of rules and regulations, slogans, and negative methods. It has been found that demonstrations, practice lessons, dramatizations, and visual lessons have much more value in actually establishing good practices and attitudes. Being informed about a

danger is not enough; one must develop the necessary habits, skills, and attitudes to meet or avoid that danger.

Classroom instruction is only one part of the school program, however. Co-curricular activities provide another important part. School safety patrols, traffic squads and courts are found in a large percentage of the schools. They are organized to protect children on their way to and from school, to direct traffic within the building, and to prevent accidents on the playground and in the gymnasium. Safety councils and such clubs as Swimming and Water Safety, Boy Scout, Rifle Practice, First Aid, Auto Mechanics, and Motor Clubs are organized to encourage safe practices and attitudes and to provide activities through which pupils can learn by doing. In addition the school assembly provides one of the best means of teaching safety through plays, pageants, motion pictures, sound film, slides, and demonstrations.

New Emphasis in the Secondary School Program. There are three important needs that were intensified after the outbreak of World War II. The first is preinduction driver education to prepare young people for the armed services. It has been found that one of four enlisted men is called upon to drive some type of motor vehicle in our mechanized army. In view of this, the U. S. Office of Education and the War Department have recommended that this instruction be given in the upper classes of the high schools. It has been demonstrated that such training not only helps shorten the time required for the Army to train personnel to drive its vehicles, but that such training helps prepare young people to meet the responsibilities of driving such civilian vehicles as trucks, buses, ambulances, and private passenger cars.

The second need is for more stress on safety instruction in school shops. Industry is calling for an ever-increasing number of workers. It has been found that accidents, fires, and other disasters cut deeply into manpower, resulting in delay on the production lines. Industrial accidents have become a form of sabotage in the national effort. Safety has therefore become a basic requirement in industry, and the schools can do much to build up proper attitudes and practices among the young people enrolled in our shops.

The third important need is for more home-safety and fire-prevention instruction. Indus-

ST. JOHN'S COLLEGE PROGRAM

try has found that there is more loss of time and production because of off-the-job accidents than accidents in the plant itself. Fires in the home, falls, burns and scalds, gas and electrical accidents, poisoning, and other types of home accidents result in altogether too many deaths and injuries. Instruction to prevent these accidents can be given in household arts, the school shops, and in general science and chemistry. Since accidents, fires, and other disasters rob us of so much manpower and material each year, everything that can be done by the schools to give safety instruction thereby tends to strengthen our national security.

Results of Safety Education. It is estimated that in the period between 1930 and 1940 more than twenty-five thousand child lives were saved, in addition to between seven hundred thousand and eight hundred thousand children saved from injury. No one can estimate the economic value of this saving or the reduction in property loss that has resulted. In the face of a steady rise in accidents involving adults, there has been a steady decline in those to school-age children.

There are many examples of cities that have established remarkable records in child accident prevention. It has been shown that a school system having a well-planned safety program can reduce its accidents 20 to 50 per cent. It is interesting to note that while water sports have more than doubled during the past decade, accidents involving children of school age have shown a marked decrease. The swimming and water-safety instruction given by the schools, camps, and other agencies, in cooperation with the American Red Cross, has been instrumental in effecting this reduction. There is no question but that safety education yields rich dividends in the actual saving of lives and in the reduction of preventable injuries. It is a discipline which must be assumed if we are not to be destroyed by our own creations.

H.J.S.

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ST. JOHN'S COLLEGE PROGRAM.

The St. John's Program, the liberal arts curriculum inaugurated by St. John's College, Annapolis, in 1937, is a four-year program leading to the Bachelor of Arts degree, required of all students in the College, and including no electives. Its purpose is to teach students to practise the liberal arts—the arts of reading, of writing, of speaking, of listening, of understanding, in short of manipulating successfully the complicated and subtle symbols, whether linguistic or mathematical, through which human thinking goes on and through which human action becomes thoughtful action. The curriculum is not intended to furnish professional or vocational training in any subject matter, although in order to carry out its own purpose, it incidentally furnishes the student with a considerable knowledge of many subject matters now taught in the elective system. It assumes that the best “pre-professional” training, regardless of the profession the student may choose, is a sound basic training in the liberal arts and a direct intellectual experience of the great minds of our civilization.

In order to achieve these purposes, the curriculum uses as mediums in which the student may learn to practise the liberal arts, the great books of our civilization, in all “fields” from Homer to the twentieth century. These are read in English translation by the student and discussed two evenings a week in a “seminar” of twenty students under the guidance of two instructors. Perhaps the best model of the seminar technique St. John's aims at is to be found in the question-and-answer, the give and take of a Platonic dialogue. There is no lecturing in the seminar, no reciting, no quizzing. Supplementing the seminar the student attends five tutorials a week in mathematics, where in a class of not more than ten he recites, goes to the blackboard, and irons out his personal difficulties. He attends five similar tutorials a week in language, where he analyzes, interprets, criticizes and composes. For the first four trimesters, he studies Greek, translates, paraphrases; for the rest of his four years,

ST. JOHN'S COLLEGE PROGRAM

his language tutorial is chiefly a matter of closer reading of the great books than is attempted in the seminar. One afternoon a week in his first two years, and two afternoons a week in his third and fourth year, he works in a laboratory in a section of twenty, handling experiments in physics, chemistry, and biology. One evening each week he listens to a formal lecture of an hour and a half, delivered to the entire college, and followed by a discussion and heckling period of indefinite length. This weekly regime is followed for four years.

The student stands a half hour oral examination each trimester, followed by a "don-rag" a week later, of fifteen minutes, during which he listens to each of his instructors report in detail on his progress and deficiencies. At the end of each of his first three years he writes an essay on a topic chosen from a posted list or on one of his own choice. At the beginning of his third year, he takes written and oral examinations on the work he has covered. If he passes, he is admitted to candidacy for the degree and during his fourth year gets a month off in which to write a dissertation. This dissertation, which is not expected to show original research but a genuine capacity to say something important and significant, he defends in a formal, one-hour, public oral examination.

The St. John's College student body represents a fair cross-section of American high-school graduates, in terms of intellectual ability. It is also heterogeneous socially, economically, and geographically. Its graduates represent the same range of later occupations that the colleges of other colleges do, professional schools included. Beginning in 1939, intercollegiate competition was dropped from the College athletic system and participation in voluntary intra-mural sports greatly expanded. Beginning in 1942, students were admitted from the second year of high school, with excellent results.

A list of the great books around which the curriculum is organized follows. This list undergoes constant revision in the light of teaching experience:

A LIST OF GREAT BOOKS

In Chronological Order

Homer: *Iliad* and *Odyssey*
 Æschylus: *Oresteia*

Herodotus: *History*
 Sophocles: *Ædipus Rex*
 Hippocrates: *Ancient Medicine and Airs, Waters, and Places*
 Euripides: *Medea*
 Thucydides: *History of the Peloponnesian War*
 Aristophanes: *Frogs, Clouds, Birds*
 Aristarchus: *On the Sizes and Distances of the Sun and Moon*
 Plato: *Dialogues*
 Aristotle: *Organon, Poetics, Physics, Politics*
 Archimedes: *Selected Works*
 Euclid: *Elements*
 Apollonius: *Conics*
 Cicero: *On Duties*
 Lucretius: *On the Nature of Things*
 Virgil: *Æneid*
 The Bible
 Epictetus: *Moral Discourses*
 Nicomachus: *Introduction to Arithmetic*
 Plutarch: *Lives*
 Tacitus: *The History*
 Ptolemy: *Mathematical Composition*
 Lucian: *True History*
 Galen: *On the Natural Faculties*
 Plotinus: *Enneads*
 Augustine: *Confessions, On Music, Concerning the Teacher*
 Justinian: *Institutes*
 Scotus Erigena: *On the Division of Nature*
 Song of Roland
 Saga of Burnt Njal
 Grosseteste: *On Light*
 Bonaventure: *On the Reduction of the Arts to Theology*
 Aquinas: *On Being and Essence, Treatise on God, Treatise on Man*
 Dante: *Divine Comedy*
 Chaucer: *Canterbury Tales*
 Villon: *Le Grand Testament*
 Oresme: *On the Breadths of Forms*
 Pico della Mirandola: *On the Dignity of Man*
 Leonardo: *Note Books*
 Machiavelli: *The Prince*
 Erasmus: *In Praise of Folly*
 Rabelais: *Gargantua*
 Copernicus: *On the Revolutions of the Circles*
 Calvin: *Institutes*
 Montaigne: *Essays*
 Gilbert: *On the Loadstone*
 Cervantes: *Don Quixote*
 Shakespeare: *Henry IV, Hamlet, King Lear, Macbeth, Tempest*
 Francis Bacon: *Novum Organum*
 Kepler: *Epitome of Astronomy*
 Harvey: *On the Motion of the Heart*
 Corneille: *Le Cid*
 Galileo: *Two New Sciences*
 Descartes: *Geometry, Discourse on Method, Meditations*
 Hobbes: *Leviathan*
 Boyle: *Sceptical Chymist*
 Molière: *Tartuffe*
 Pascal: *Pensées*
 Milton: *Paradise Lost*
 Racine: *Phèdre*
 Grotius: *Law of War and Peace*

ST. LOUIS PLAN — SAMPLING

Spinoza: *Ethics*
 Newton: *Principia Mathematica*
 Locke: *Second Treatise on Civil Government*
 Huygens: *Treatise on Light*
 Berkeley: *Dialogues between Hylas and Philonous*
 Leibniz: *Discourse on Metaphysics, Monadology*
 Vico: *Scienza Nuova*
 Swift: *Gulliver's Travels*
 Hume: *Treatise of Human Nature*
 Montesquieu: *Spirit of Laws*
 Fielding: *Tom Jones*
 Voltaire: *Candide, Mircromegas*
 Rousseau: *Social Contract*
 Gibbon: *Decline and Fall of the Roman Empire*
 Smith: *Wealth of Nations*
 Kant: *Critique of Pure Reason*
Constitution of the United States
Federalist Papers
 Bentham: *Principles of Morals and Legislation*
 Lavoisier: *Treatise on Chemistry*
 Malthus: *Principles of Population*
 Dalton: *A New System of Chemical Philosophy*
 Hegel: *Science of Logic*
 Coleridge: *Biographia Literaria*
 Fourier: *Analytical Theory of Heat*
 Goethe: *Faust*
 Lobachevski: *Theory of Parallels*
 Balzac: *Père Goriot*
 Faraday: *Experimental Researches in Electricity*
 Schopenhauer: *World as Will and Idea*
 Peacock: *Treatise on Algebra*
 Thackeray: *Henry Esmond*
 Dickens: *Bleak House*
 Boole: *Laws of Thought*
 Virchow: *Cellular Pathology*
 Mill: *On Liberty*
 Darwin: *Origin of Species*
 Bernard: *Introduction to Experimental Medicine*
 Mendel: *Experiments in Plant Hybridization*
 Hamilton: *Quaternions*
 Riemann: *Hypotheses of Geometry*
 Dostoevski: *The Possessed*
 Marx: *Capital*
 Tolstoi: *War and Peace*
 Dedekind: *Essays on Numbers*
 Maxwell: *Electricity and Magnetism*
 Flaubert: *Bouvard and Pécuchet*
 Ibsen: *Ghosts, Rosmersholm*
 Galton: *Enquiries into the Human Mind and its Faculties*
 Joule: *Scientific Papers*
 Clifford: *Common Sense of the Exact Sciences*
 James: *Principles of Psychology*
 Freud: *Studies in Hysteria*
 Cantor: *Transfinite Numbers*
 Hilbert: *Foundations of Geometry*
 Poincaré: *Science and Hypothesis*
 Russell: *Principles of Mathematics*
 Veblen and Young: *Projective Geometry*
 (See LIBERAL ARTS' COLLEGE.)

S.B.

ST. LOUIS PLAN—See PROMOTION.

SALARY, TEACHERS'—See TEACHERS' SALARY.

SALESMANSHIP TRAINING — See DISTRIBUTIVE EDUCATION.

SAME-OPPOSITE TEST—See OBJECTIVE TESTS AND EXAMINATIONS.

SAMOA, EDUCATION IN, AMERICAN—See UNITED STATES TERRITORIES AND OUTLYING POSSESSIONS, EDUCATION IN.

SAMPLING. In most branches of study and research, it is impossible to study all the cases or individuals. The total *population*, or *universe*, as it is called, can rarely be studied because it is physically impossible to do so. The numbers and amounts are usually much too large.

Consequently it is necessary to study a sample of the total. The sample should have the characteristics of the population, in other words, it should be like the population which it represents. The necessity of having the sample typical of the total is obvious, when on the basis of the sample, general conclusions are drawn that are intended to be applicable to the whole population. If the sample is not a true or accurate sample, then the conclusions or generalizations made are misleading because they are drawn from data which are not representative of the total. Thus, the results of an experiment conducted with 100 thirteen-year-old boys may be interpreted as applying to all thirteen-year-old boys only if the 100 boys who were studied are representative of all boys that age.

A few examples illustrate what is meant. For example, when the elevator man grades a truckload of grain brought to the elevator, he takes small amounts of grain from the load at various times while it is emptying into the bin. By taking small measures of grain from the stream of grain emptying from the truck from the time the grain begins to flow until the truck is emptied, the elevator man aims to have a sample which accurately represents the entire load. The sample is tested for weight, moisture, and amount of foul material. On the basis of the tests, the load of grain is rated and the likelihood is that this method is accurate.

In another instance the investigator may have a million or more records. This is the situation as it pertains to records for the soldiers conscripted for World War II. There are several million records including psychological, and social data. Studies can be made of these records to find the variability and central tendency of several traits and characteristics. Even though we now have machines that can handle punched cards very

rapidly, still it is very probable that only a sample will be used rather than the whole supply or population. Possibly every tenth, hundredth, or five hundredth record will be satisfactory. The sample should be large enough to be highly reliable but not so large that an inordinate amount of work is required to make statistical analyses.

Random Sample. A *random sample* is a limited group selected from a larger population or universe on a purely chance basis. Two conditions which must be met in the selection of a random sample are that every individual in the population must have an equal chance of being chosen, and that all choices must be independent, i.e., one choice should not affect any subsequent choice. A random sample is not necessarily representative but any non-representativeness is due to the operation of chance. As the random group increases in size with reference to the larger group, the greater becomes the likelihood of its being truly representative. Mechanical methods of selection, such as drawing lots, selecting names at arbitrarily specified regular intervals from a list, and using tables of random numbers may be expected to produce a random sample. The war draft, the Irish Sweepstakes, and the various "Bingo" games all illustrate the principles of random sampling. We virtually never have random samples in educational research. In some instances it is not satisfactory to try to obtain a sample by random selection, but it may be satisfactory to select a sample through careful selection of a representative sample.

In conducting straw votes, for example, it is desirable to use as small a sample as possible, but to have one that will yield true and accurate results. It is essential to consider the factors which influence people in their voting. Usually economic or vocational classification is the best. Thus the sample should have proportional parts which are characteristic of the whole population. If 5 per cent of the adult population are in the professions, then 5 per cent of the sample should belong to the professions. Experience has indicated that samples drawn by this method for conducting straw polls have proved satisfactory. Factors such as geographical location, religion, and nationality should also be taken in account on certain issues or questions. It is essential in trying to obtain a representative

sample to consider only the factors which exercise influence.

How can one tell whether the sample is representative of the population or universe? One never can be sure because in the first place one usually does not have full information about the population. The sample may or may not be truly representative and it is necessary to judge the sample by certain criteria.

The size of the sample is important. A small one is usually not satisfactory and the larger the sample, the better it is likely to be. This is particularly true of random or choice samples and is less true of samples that are selected according to sound statistical principles. If prejudicial factors are operating, an increase in the size of the sample does not improve it until the size of the sample approaches the size of the population, at which time the prejudicial factors are overcome.

The sample must be analyzed carefully to judge whether or not the factors of selection have been statistically sound. Let us take an example pertaining to the selection of foster children. Studies have been made purporting to show that foster children in better homes improve more in intelligence than do foster children raised in less favorable homes. The data lead to this conclusion if we can be sure that the foster children placed in homes of different grades or qualities were comparable at the time of placement. This situation probably does not exist because the foster parents having better homes are probably more intelligent and discriminating and probably select foster children of greater potential capacity. They look into the background of the children and select those who are more promising, while less thoughtful foster parents are not apt to select in so careful a manner.

Sometimes the principle of the normal curve is invoked to test a sample. It is assumed that if the sample is normal it is a good accurate one. This is probably true if the population is normally distributed, but it is possible and even probable that the population is not distributed normally. In such a case the sample should not be distributed normally but be distributed similarly to the population.

A good check is to take additional samples and compare them. If the various sam-

SARMIENTO, DOMINGO FAUSTINO

ples are similar, it is safe to conclude that any sample is a good one. H.S.

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SARMIENTO, DOMINGO FAUSTINO (1811-1888). Domingo Faustino Sarmiento was the greatest of Spanish-American educators. He was not a specialist in the field of education nor in any other single area; his was the complete, the all-embracing mind, and he represented better than any one else the heroic creator of a nation, Argentina, his native land, in the formative period of Spanish-American nationalities. Born in the first year of Argentina's independence, he lived more intensely than any other Argentinian the chaotic, dramatic, heroic process of his nation's history, the civil wars, dictatorships and the attempts to organize the country along modern lines which marked the first fifty years of Argentina's existence. He was president of the Republic from 1868-74, and before he died, in 1888, he was privileged to see his nation definitely constituted along the lines of the ideas he had expressed in his writings fifty years before and which he had upheld with a determination, tenacity, and strength of conviction which place him among the Titans of history. A rugged individualist, an outstanding example of this as of all the other characteristic traits of his Hispanic race, he always fought alone, and often against everyone else. His strength came from no social or collective party or group, but from his own personality.

Among the ideas with which he identified his turbulent, passionate personality was that education is the principal factor in the formation of a nation. "We must make a school of the whole Republic," was the dogma he upheld, not only theoretically in his books, *Educación Popular* (1849), and *La Educación Común* (1855), but in practice as well, in every possible way, as teacher, statesman, journalist, and propagandist. His passion for education displayed itself in so many aspects and activities that it would be impossible to summarize and enumerate them. His vocation as a teacher began when, at the age of fifteen, he founded the first of the hundreds of schools he was to create in the course of his full life. In 1839 he founded in his native city, San Juan de la Rioja, the first school

for girls in Argentina, and made the first of the countless speeches he was to deliver throughout his life on the occasion of the opening of a new school or of some other type of educational center all over the Republic. During his exile in Chile (1840-45) he was actively engaged in educational work as Director of the first Normal School of South America. He wrote school texts, among them a graduated method for learning to read, *Metodo de lectura gradual*, which was published the same year as his literary masterpiece, *Facundo*, the outstanding work of Spanish-American literature, which has been translated into four languages. (The English version was by Mrs. Horace Mann.)

From 1845-48 he was commissioned by the Chilean government to travel in Europe and the United States to study primary education there, and on his return he published his books, *Viajes* and *Educación Popular*. Of the latter work Barnard said: "No such work had ever appeared in the Spanish language, and its merits are surpassed in no language."

His ideas on education came from European sources, principally French. But from his early youth, when he learned English by reading Franklin's autobiography, he had been a fervent admirer of the United States, which was to him the model of the democratic education he planned to introduce in his country. After this first visit he returned to the United States as Argentine Minister in Washington (1865-68). He knew, admired and followed Horace Mann; he was the friend of the American educators, writers, and scientists of his day; and he brought American methods and teachers to Argentina. His intimate contact with Mann, Barnard, and other leaders of the Common School Movement in the United States confirmed his faith in the efficacy of popular education as a *sine qua non* of republican government. All in all it may be said that he has been one of the outstanding promoters of inter-American relations.

Before his second trip to the United States he was Superintendent of Schools in Buenos Aires (1856-62), a post he gladly resumed after leaving the presidency of his country, and which he held from 1875-79 and in 1881. On his election to the presidency of Argentina he made a memorable address to the teachers of Buenos Aires, in which he emphasized the preeminent rôle education had held in his political activities all his life.

His earlier work in Chile (to 1855) and his later work as Minister of Public Instruction in Argentina and later as President of the Republic (1868-74) was grounded upon two principles which he considered basic for the development of an efficient system of popular education. One of these was that education must have national direction, manifesting itself through liberal appropriations in aid of schools in the provinces. The other was the need for normal schools. But, with Sarmiento, there was a postulate deeper than either of these; namely, that a republican form of government was impossible unless it rested upon a system of popular education.

On the fiftieth anniversary of his death in 1938 a tablet was placed upon his grave with the following inscription: "The Argentine nation to the memory of the President of the country and the school-master, Domingo Faustino Sarmiento." His merit as an educator lay less in the originality of his ideas than in his genius for converting these ideas into vital forces for the building of a nation. (See ARGENTINA, EDUCATION IN; CHILE, EDUCATION IN.) F.D.O.

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SATISFIERS—See ANNOYERS AND SATISFIERS.

SCALED SCORES—See SCORES, CONVERSION OF.

SCALED TEST — See STANDARDIZED TESTS.

SCHEDULE, DAILY. The daily schedule is the chart or plan of the organized, day-by-day activities of a school. It shows the arrangement of class groups and the so-called extracurricular activities of the school. The daily schedule is known by a number of other terms: schedule of recitations, school program, general schedule, schedule of classes, daily class schedule, and the like. The practice in current literature is to use the expression *daily schedule* as the most comprehensive and descriptive one.

The daily schedule of the elementary school teacher is relatively simple since the pupils are usually in one room and generally under the direction of one teacher. Such a schedule

gives (1) the time of opening and closing of the morning and afternoon sessions, (2) the time and length of any intermissions in either sessions, and (3) the time and length of the various class, activity, and study periods. (See PROGRAM, DAILY.)

The daily schedule of the high school, however, is more complex and more difficult to prepare since a number of classes or activities of the high school are conducted simultaneously. The high-school schedule generally indicates (1) the time of opening and closing of the school day, (2) the time and length of any intermissions, and (3) the time, place, and instructor in charge of each recitation, laboratory, activity, or study period.

Studies concerning schedule-making show that the preparation of the daily schedule of the high school is usually a task of the school principal or assistant principal. Its preparation is one of the school administrator's major responsibilities, for the successful functioning of the high school is largely dependent upon the careful preparation of the daily schedule. In building a daily schedule there are involved several factors and features, some of which are relatively fixed. Some of the items to be considered in schedule-making are (1) expected pupil enrollment; (2) number of available teachers and their teaching fields; (3) number, size, and suitability of rooms; (4) curriculum; (5) requirements of the state department of education, regional accrediting association, and local board of education; (6) customs and traditions of the local community; (7) length of school day; (8) number and length of periods and intermissions between periods; (9) pupil-teacher ratio; and (10) plan of daily operation—continuous or double-session.

In addition to considering the above items the schedule maker should give some thought to general college entrance requirements, plans for grouping or sectioning pupils, and distribution of subjects between the morning and afternoon so that no pupil will be particularly overburdened with classes in either half of the day. The principal of the small high school will need to explore the possibilities of combining certain class groups and alternating certain subjects by semesters or years in order to avoid very small classes. For example, juniors and seniors may be combined one year for English Literature and the

SCHEDULE, DAILY

following year for American Literature. This is an example of both combination and yearly alternation.

To facilitate schedule-making, it is recommended that high-school principals, especially beginners, secure copies of former daily schedules of their schools and as much information as possible concerning the items already enumerated herein.

There are two general practices in schedule making, which are diametrically opposed to each other: (1) having pupils register from a more or less arbitrarily prearranged schedule, which is often the same in a given school, year after year, and (2) conducting a preliminary registration, or choice of subjects, and then making the schedule in terms of the pupils' choices. While the first method is more convenient administratively, it is generally considered undemocratic and poor administrative policy. The second method is the one recommended and followed by the better school administrators.

The preliminary registration should be made several weeks before the end of the first semester or the end of the school year. It is especially during this preliminary registration that the school should practice effective pupil guidance. Many school administrators require that the pupils' choice-of-subject blanks be signed by the parents.

Largely upon the basis of this preliminary registration and with other related facts in mind, the administrator sets himself to the task of preparing the daily schedule. There are at least two helpful mechanical aids that he can utilize. One of these is the *schedule board*, the form and size of which vary according to the needs and preferences of each school. The names of the various teachers, arranged alphabetically as a group or by departments, are placed along one margin. The daily periods are placed in sequence along the other margin. Spaces or pockets are provided for the various proposed class and activity sections. For these spaces or pockets there are prepared small movable cards or blocks having on them the names or sections of the different classes or activities. These can be shifted about on the schedule board to produce the best organization.

The second mechanical aid is the *conflict sheet*, which has the various subjects or activities listed in the same order on both

margins. The sheet is ruled horizontally and vertically. At the proper intersections tallies are made from the pupils' choices in their preliminary registration. This procedure is time-consuming, but can be done by the clerical staff. The purpose of the sheet is to show at a glance what subjects will conflict with one another and the number of conflicts between any two subjects. Thus the schedule maker, in his use of the schedule board, can determine from the conflict sheet what subjects it is unwise to plot in the same period of the day. This procedure will not remove all conflicts, but the number can be lessened.

The three most general plans of building the daily schedule are the *block*, *mosaic*, and *combination methods*. The block method may be used where there are a sufficient number of pupils taking the same combination of subjects to provide for one or more sections of the various subjects. Such subjects may be omitted from the conflict-sheet tabulations and immediately inserted in the master schedule. The mosaic method involves the shifting of the cards or blocks on the master schedule to avoid the conflicts evident in the conflict sheet, and must be used for those pupils whose registrations make it impossible to use the block method. The combination method is the one generally used and, as its name implies, is a combination of the block and mosaic methods. In all these methods a certain amount of trial-and-error must be employed, although practice in schedule-making will tend to reduce it. The high-school principal will soon learn by experience certain short cuts in his work.

A few large schools make use of business machines such as the *Hollerith* for sorting and counting cards punched with the data from the pupils' preliminary registrations. The price of this equipment, however, is prohibitive for most schools. (See PROGRAM, DAILY.)

W.R.F.

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SCHNEIDER PLAN — SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL

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SCHNEIDER PLAN—See CINCINNATI PLAN.

SCHOLARSHIPS AND FELLOWSHIPS, INTERNATIONAL. In the field of international scholarships and fellowships during the last forty years, the United States has probably led the world in the number of foundations and the number of students concerned. The pioneer in this field, however, the man who established the first and the best known plan, was not an American but an Englishman who lived his life in South Africa, Cecil John Rhodes. When Rhodes died in 1902 and his famous will was published there were, aside from the Boxer Indemnity Scholarships, only a few scattered opportunities for international study. The Rhodes will was one of the most daringly imaginative documents in the history of education. By it were established approximately two hundred scholarships for students from the United States, the British Dominions, and Germany, for study at the University of Oxford. Nearly one half of these appointments went to the United States—two for each of the forty-eight states, or ninety-six in all.

During the period of nearly forty years since the first Rhodes Scholars were selected in 1904, more than two thousand men from the various countries concerned have pursued their studies at Oxford. There are more than one thousand ex-Rhodes Scholars living in the United States; they may be found in every corner of the country and in almost every occupation.

The success and the prestige of the Rhodes Scholarships have been such as to exert an important influence on American philanthropy, in the first place by bringing about the establishment of systems of fellowships reciprocating the Rhodes Scholarships, bringing English students to study in American universities; and in the second place by influencing the establishment of funds with a similar purpose, offering American students other opportunities for study abroad.

Since the Rhodes Scholarships were established opportunities have been created in the United States for bringing each year as many Englishmen—indeed more—to study in

American universities as there are American Rhodes Scholars going to Oxford. The Commonwealth Fellowships bring the largest number and most definitely reciprocate the Rhodes scheme. There are, in addition, the Davison Fellowships to Harvard, Yale, and Princeton; the Choate Fellowship to the Harvard Law School; the Procter Fellowships at Princeton; the Riggs Fellowships at the University of Michigan; and the Henry Fellowships to Harvard and Yale.

The second general result of the Rhodes Scholarships is the establishment of American foundations with a similar purpose. The most important of these is the John Simon Guggenheim Memorial Foundation, offering research opportunities to older scholars, suggested to the founder in the first instance by the example of Rhodes and organized and administered by Rhodes Scholars.

The Guggenheim Foundation is intended for scholars who have already demonstrated unusual aptitude for independent research or for creative work in any one of the Fine Arts, including music. American fellows may study in any country where their work may best be done and they work under the freest possible conditions. In addition to appointments for American scholars to work in this country or abroad, the Guggenheim Foundation offers fellowships in a steadily increasing number of countries of the western hemisphere for scholars who wish to pursue their researches in the United States. These countries include at present Canada, Mexico, Cuba, Puerto Rico, Brazil, Uruguay, Argentina, Chile, and Peru.

Other systems of international fellowships open to American students, all owing something to the Rhodes example, are the Henry Fellowships to Oxford and Cambridge; the fellowships established by the Commission for the Relief of Belgium, for study in Belgian universities; the American Field Service Fellowships to French universities; and the fellowships offered by the American Academy in Rome, the Institute of Current World Affairs, the Kosciuszko Foundation, the Lalor Foundation, and the Oberlander Trust.

Even more widely extended are the appointments, varying in number and plan from time to time, offered by the Rockefeller Foundation, which bring scholars from other countries to the United States, from the United

SCHOLASTIC ABILITY

States to various European countries, and from one European or South American country to another. The Carnegie Corporation has likewise, without establishing any single uniform scheme, supported a large number of individuals whose plans made it necessary for them to go from one country to another for study and research.

The Institute of International Education, which administers the American Field Service Fellowships to France, supervises also a large number of appointments open to foreign students who wish to study in the United States or to American students who wish to study in some foreign country. Many of these fellowships are supported by small funds; others are individual exchanges. There are some twenty-five or thirty countries involved in these exchanges and the total number of students going in one direction or the other has in recent years varied between 6,000 and 9,000. (See also RHODES SCHOLARSHIPS.) F.A.

SCHOLASTIC ABILITY. Scholastic ability, as distinct from scholastic aptitude, indicates what can actually be achieved in school work, while the latter signifies what could be acquired with proper motivation and training. Theoretically, scholastic aptitude for all but the manual skills is supposed to be very closely correlated with intelligence. Actually, correlations between school achievement and I. Q. or mental age have not been found to be high. These correlations vary depending on the particular tests used, the particular subject-matter tested, and the particular groups tested. For example, correlations ranging from $+0.50$ to $+0.90$ have been found for different reading tests and intelligence. On the whole, the more verbal and abstract the subject-matter (e.g. reading and arithmetic reasoning), the higher the correlation with intelligence. The more concrete the task, the more it can be learned by rote, the more manual in nature (e.g. arithmetic computation and handwriting), the lower is the correlation with intelligence. One study found that among the same group of children the correlation between intelligence and the understanding of arithmetic was $+0.60$, while that of intelligence and arithmetic computation was $+0.35$, and that of intelligence and handwriting was only $+0.21$.

In spite of the fact that the correlations

found between school achievement and mental age are not very high, it has become customary to expect every child to "live up to his intelligence" in subject-matter achievement. This means that we expect him to reach a standard of achievement corresponding to the norm or average for his mental age. The concepts of *educational quotient* and *accomplishment ratio* have been introduced to describe whether the child does maintain such a level of achievement. (See EDUCATIONAL AGE.)

However, when correlations between intelligence and achievement in a particular subject are $+0.60$ and lower, accomplishment ratios will show a wide range both above and below 100. It is not fair, therefore, to expect all children to reach the mean school achievement for their mental age. Such an expectation signifies a belief that if all the children were properly motivated, they would all reach at least the level of achievement which is at present the average for their mental age. There is not enough justification for such an assumption. It is true that with better teaching the achievement norms for each age might be raised considerably, so considerably that the pupil who scores farthest below the norm at that time makes as high a score as the present average. However, if such an improvement were brought about, it would not necessarily mean that the range of achievement at any mental age level would decrease. The new norms would be higher but there might be the same number of E.Q.'s that did not correspond with the I.Q.'s. While better teaching should be expected to improve achievement, it would not follow that the correlation between intelligence and school achievement would be raised. However, it is important to bear in mind that even if one believes that the quality of a person's intelligence changes little throughout life, the fact that so many types of achievement have so low a correlation with intelligence means that there are other factors, many of them open to deliberate change, which also affect the standard of achievement.

Correlations between school achievement and intelligence are lower in high school than in the elementary school, and still lower in college. The decrease in the correlation with the level of schooling does not mean that intelligence counts for less at higher levels of

education. It is due partly to the fact that the range of intelligence is greatest in the elementary school and least at the college level. When the group upon whose measurements correlations are based has a narrow range in one characteristic, the correlation between that characteristic and another will be lower than if a group of wider range had been chosen (See CORRELATION). Another reason for the low correlation between measured intelligence and measured scholastic ability in college is the fact that in first class colleges only persons of high intelligence are admitted. A higher intelligence than the average for students at these colleges is not necessary for the attainment of high marks in most of the college subjects as taught and tested. What counts more in determining college success are motivation, study habits, general personality adjustment, and the amount of time available for study. Some colleges which admit most of their students on their high school records alone and the rest on the basis of entrance examinations find that those who have shown good high school ability also prove themselves abler at college than do those who did not do so well in high school but did do well on the entrance examinations, a finding which tends to corroborate the importance of motivation and study habits for college achievement.

At all school levels intelligence is more highly correlated with general achievement than it is with achievement in specific subjects. Special *prognostic tests* for specific subjects such as foreign language and mathematics and reading (called reading readiness tests) are being introduced to predict to what degree a pupil will be successful in undertaking specific training in that subject at that time. Prognosis tests used together with intelligence tests are better than either used alone. Both, however, predict much better those who will not succeed than they differentiate between those who will gain a high degree of success and those who will realize average achievement. It is customary to find the *critical score* on each prognosis test. Students scoring below the critical score have so little chance of succeeding in the subject-matter for which the test is prognostic that they are usually not permitted to proceed with that study at that time. (See PREDICTION OF SUCCESS AND PROGNOSTIC TEST.)

It is often assumed that scholastic ability

can be predicted from scholastic interest. Many years ago Thorndike found a correlation as high as $+0.89$ between educational interests and self-estimated abilities. This correlation proved to be much too high when the problem was further investigated and when other measurements of abilities than self-estimations were used. Investigations which compared self-estimated interests in college courses both with self-estimated abilities and with college grades found that the correlation between interests and grades was much lower than that between interests and self-estimated abilities. In many groups the average achievement of students preferring a subject was no higher than the average achievement of the rest of the class. However, a much larger percentage of students who prefer a subject make their "best grades" in that subject and a smaller percentage made "worst grades" than do students as a whole.

Numerous studies have been made of the correlation of abilities in the various school subjects. Success in one subject, such as mathematics, has been correlated with success in other subjects, such as science, social science, English, etc. Some investigators have studied the correlation between success in one phase of a subject with success in another phase of the same subject; for example, the correlation between ability in arithmetical computation and in problem solving, and between knowledge of grammar and composition ability. As is to be expected of investigations which deal with so many different situations, there has been a wide range in the coefficients of correlation reported, with most coefficients of correlation between ability in one subject and ability in another subject falling within the limits $r=+.30$ and $r=+.60$. The closer the similarity in content and procedure, the higher is the coefficient of correlation between success in one subject and success in the other. Thus, the correlation is higher between elementary algebra and intermediate algebra than between elementary algebra and physics; the correlation between elementary algebra and physics is higher than the correlation between elementary algebra and English; and the correlation between elementary algebra and English is higher than between elementary algebra and health education. Significantly enough, wherever large and relatively heterogeneous groups of pupils are studied, the cor-

relations found are positive, though they may be low. There is no school subject in which success is regularly, or even often, correlated negatively with success in another subject. Since coefficients of correlation reflect the scores of groups of students, the prevailing positive correlation of ability in school subjects does not mean that individual students may not be successful in one subject and fail in another. B.B.F.

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SCHOOL HYGIENE—See **HYGIENE AND HEALTH EDUCATION**.

SCHOOL LAW—See **EDUCATIONAL LAW AND LEGISLATION**.

SCHOOL REPUBLIC—See **SELF-GOVERNMENT**.

SCHOOL YEAR, LENGTH OF. The *school year* may be defined as the length of time the school is in session. There are several factors which determine the length of time any given school may operate within the calendar year. Among those factors are the following: (1) the wealth of the state or community, and (2) the amount of the tax money the citizens are willing to set aside for educational purposes.

Many people are not aware of the wide differences in the scope and quality of public school programs in the several states. Length of school year is only one of the factors which undoubtedly reflect those differences to a significant degree.

In 1939-40 the average school term in the nation as a whole was about 175 days, or $8\frac{3}{4}$

months. In the individual states the average term ranged from 146 days in Mississippi to 188 days in Maryland. While thirteen states operated their schools for at least nine months, on the average, four states kept theirs open for less than eight months and eleven operated for less than $8\frac{1}{2}$ months.

In each state, of course, approximately one half of the school children had terms that were shorter than the state average and, in general, rural school terms were much shorter than those in urban areas. In the rural schools of Mississippi the typical term in 1937-38 was only 136 days while in the urban schools of the same state it was 177 days. For the whole nation the average length of rural school terms was 166 days, as compared with an average term of 181 days in urban schools.

Most of the states ranking lowest in length of school term are in the Southeast while those ranking highest are located chiefly in the Middle Atlantic, New England, and Middle states. O.G.J.

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SCIENCE, TEACHING OF. Throughout the elementary and junior high school, the subject matter of science instruction is undifferentiated and is known as *science* or *general science*, the first term tending to supersede the second, especially in the elementary grades. The subject matter of any unit of instruction in these schools is not restricted to the fields of the specialized sciences, such as botany, zoology, astronomy, physics, chemistry, geology, or meteorology, although it includes information and principles formally belonging to each of these fields.

In some high schools General Science is offered in the tenth, eleventh, and twelfth grades. The science course most frequently offered in the tenth grade is biology, a course which varies greatly in content from school to school. Earlier textbooks had a tripartite organization of units of botany, zoology, and human physiology. Stress during the twentieth century has been placed successively on such central ideas as evolution; the relation of organisms to man as actual or potential wealth (economic biology); organisms as users of and competitors for energy; physiological processes, emphasizing human physio-

logy; social and civic problems, such as individual and community health, genetics, mental hygiene, conservation, and consumer problems.

Chemistry and physics are the dominant science subjects in the last two years of the high school. Although the trend in these fields is away from the systematic or disciplinary content characteristic of earlier periods and toward practical problems of everyday life, much less change has taken place here than in biology.

Small and ever decreasing enrollments throughout the country still persist in various other science courses, the most frequently elected among which are botany, zoology, physiology, geology, and astronomy.

On the college and university level science courses are more highly diversified, specialized, and departmentalized than on lower levels. A few institutions offer orientation or survey courses which cover areas wider than those of the usual "department," but such courses have not met with general favor. Courses in general biology are fairly numerous, but frequently, especially in the larger institutions, the study of living things is undertaken in courses devoted to such smaller areas as botany, zoology, bacteriology, entomology, etc. General courses in chemistry and physics are offered for college freshmen and sophomores after which chemistry is commonly departmentalized into inorganic, organic, physiological, and physical chemistry, while the process of subdivision in physics culminates in the specialties of mechanical and electrical engineering. Technical schools of engineering, agriculture, horticulture, home economics, mining, etc., adapt their science courses to the particular needs of their respective fields.

Aims of Science Teaching. Statements of aims of science teaching are abundant in the literature of the field. They may be subsumed under the following heads: (1) Attitudes, ideals, and appreciations, (2) Methods of thinking, (3) Concepts or generalizations, (4) Useful information, (5) Experience, (6) Mental discipline, (7) Preservation of the racial heritage, (8) Preparation for further study.

By *attitudes, ideals, and appreciations* are meant certain desirable mind-sets, such as confidence in the universality of cause-and-

effect relationships, curiosity, and respect for the points of view of others, as well as the ability to enter into a wide variety of emotional experiences, such as awe in the presence of the marvels of nature, joy in discovering new truth, admiration for the efforts and achievements of scientists.

No sharp distinction can be made between mind-sets and emotions on the one hand and methods of thinking on the other. Both are involved in what is commonly called "scientific method." The method of thinking which science teachers attempt to make functional in their students consists essentially of a series of steps among which are (1) the clear recognition of a problem or uncertainty the resolution of which is sought, (2) the analysis of such a problem into its essential elements, (3) the gathering of pertinent facts or data, (4) the formation of appropriate hypotheses and the clear distinction between a hypothesis so formed and a conclusion, (5) the testing of hypotheses by means of facts already available or obtained for this purpose, and (6) the rejection or acceptance of the hypothesis in the light of data. If a hypothesis is rejected, a new one must be made and tested; if accepted, it becomes a conclusion, a new piece of knowledge to be utilized.

Prominent in writings on the objectives of teaching of science is the large generalization or concept, an idea or understanding which serves to unify and explain large areas of human experience. Illustrative of such generalizations are the following: "The sun is the chief source of energy for the earth" and "All life has evolved from simple forms".

Useful information as an objective of science teaching is self explanatory. Sense experience necessary in the attainment of other objectives or valuable for its own sake and not common in out-of-school experience must be supplied by the school. Mental discipline, in spite of the weight of evidence against it, is still regarded by many teachers as the central purpose of their teaching. The preservation and transmission of scientific knowledge from generation to generation is a defensible purpose for teaching science on advanced levels. Preparation for further study finds decreasing recognition in the elementary and secondary levels, but is a clear purpose on professional and pre-professional levels.

SCIENCE, TEACHING OF

In recent years various attempts have been made to state the objectives of science teaching in terms of resulting pupil behaviors. Outstanding among such efforts is the report of a committee of the Progressive Education Association, entitled, *Science in General Education* and the 1942 report of the National Committee on Science Teaching.

Procedures. On the college level, the prevailing methods of science teaching are lecture, lecture-demonstration, individual laboratory work, recitation or quiz, and examination, while advanced graduate work generally consists of research projects in which the definition of the problem and the methods of procedure are the student's responsibility.

In the middle and lower schools, a greater variety of methods is used. Here the tendency is markedly away from lectures, specific text assignments, and formally prescribed laboratory exercises.

In attempting to adapt the work to the varying abilities, interests, and learning rates of pupils, teachers frequently have recourse to workbooks or worksheets which are sets of more or less specific directions, including laboratory exercises; study guides; questions calling for written answers or for charts, lists, drawings, etc.; suggestions for special reports; and reading lists, etc., on which each pupil works at his own rate and with considerable latitude in the tasks he undertakes. This general method is found as a part of certain recognized procedures among which are the Morrison Unit (*q.v.*), the Contract or Dalton Plan (*q.v.*), although variations may occur in almost any procedure.

In the lower grades and less frequently in the high schools, projects are undertaken by the class as a whole or by small groups within the class, in the execution of which the aims of the course may be realized. Ideally such projects originate with the pupils and have social values which they recognize. This method lends itself readily to the establishment of desirable attitudes but less well to the development of systematized understanding and knowledge. In the hands of a skilful teacher it yields excellent results by affording natural motivation and integration of science with other school work and with life outside of the school.

Laboratory work based on specific direc-

tions and called "experiments" has declined in recent years. (See *LABORATORY METHOD*.) The present tendency is to use lecture demonstration (*q.v.*) for the purpose of interpreting scientific facts, generalizations, and principles and to use the laboratory for the solution of problems which are real to the pupils. Many studies have been made experimentally of the relative merits of individual laboratory work and demonstration. Though contradictory and inconclusive in their findings, these studies have afforded some justification for reducing the amount of individual laboratory work.

The use of such audio-visual aids in science teaching as the school journey; collections of objects, models, and specimens; and flat and projected pictures, especially moving pictures, is increasing rapidly. Excellent slides and films are now available at a reasonable cost. There is sound experimental evidence that learning is substantially increased by the use of such aids. (See *AUDIO-VISUAL AIDS*; *MUSEUM, SCHOOL*; *TRIP, SCHOOL*.)

Science teachers through their organizations and publications are attempting (1) to relate their instruction more closely to the life needs, interests, and behaviors of their students, and (2) to develop and gain acceptance of a 12-year program covering the elementary and secondary school periods, which shall be sequential and integrated.

Tests. During the decade covering approximately the years from 1924 to 1934 more than two score printed tests were published for use in high school science classes. The majority of these tests are directed to the measurement of achievement, chiefly in terms of knowledge, and are highly objective. Included among the printed tests are aptitude, diagnostic, and instructional tests; some are devoted wholly or partly to attempts to measure certain less definite outcomes such as attitudes, scientific thinking, and laboratory resourcefulness. In recent years the Co-operative Test Service has developed several series of excellent tests. (See *STANDARDIZED TESTS*.)

H.B.

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SCIENTIFIC STUDY OF EDUCATION. Early in the twentieth century, the spirit of scientific inquiry and the practice of scientific experimentation began to influence the professional thinking of educators, resulting in a significant contribution to educational progress, that of scientific educational research. The earlier empirical and speculative thinking about education gave way to inquiries made in a rigid scientific spirit and pursued by the accurate and precise methods of modern science. Educators demanded that educational reforms be based on the findings of scientific research, and became increasingly skeptical of proposals not based on reliable statistical and experimental investigations.

This movement to study education scientifically has been designated as scientific determinism. The scientific determinist insists that all educational problems be approached in a scientific attitude; that all educational practices and procedures be determined by investigations conducted in the scientific spirit and by means of scientific techniques. The scientific method is (1) objective, (2) impartial, (3) mathematically precise, and (4) subject to verification by any competent observer. This is the method that the educational research workers use in determining such matters as educational aims, educational content, educational agencies, educational organization, and educational methods. They not only draw upon the basic sciences for their data, both in the form of facts and in the form of general principles, but they also

use the laboratory and statistical investigation procedures of the exact sciences.

Educational investigation and experimentation have developed rapidly in recent years. Scientific curriculum construction and scientific determination of teaching techniques have become accepted aspects of school administration. The work of the research specialist has rapidly expanded from that of making a general survey of accomplishment and of conducting testing programs to including a wide diversity of scientific studies dealing with such problems as pupil guidance and placement, pupil classification, retardation and elimination, curriculum reorganization, salary schedules and school finance, school architecture and school plants, school legislation, and even school publicity and public relations.

The scientific research workers have contributed much to the solution of school problems and to making education more efficient, but certain dangers should be avoided in this scientific study of education. In the first place, the research worker should remember that the measurement movement is in its infancy, and that we cannot expect to perfect in a few decades our measuring instruments in this realm of intellect, emotions, and social relations. In the second place, he must not reach the conclusion that only those things which can be measured objectively and concretely have value, and that we can safely throw overboard the work of the educational philosopher. In the third place, however scientific the research worker becomes, he must never depersonalize and mechanize the work of the schools, and allow children to become mere tallies in frequency distributions or mere numbers in case-studies. Finally, scientific measurements and statistical studies must never be allowed to become ends in themselves, but always should be used as means toward the more effective education of the children of our schools. Statistical manipulations should never be allowed to run away with common sense. (See RESEARCH, EDUCATIONAL.) E.H.W.

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SCORE CARD — SCORES, CONVERSION OF

SCORE CARD—Sec BUILDING, SCHOOL;
TEACHERS, RATING OF.

SCORES, CONVERSION OF. The *raw score* (*crude score*) is the numerical result obtained directly from the scoring of a test. A youngster to whom a standardized intelligence test has been administered may receive a score of 41 points, a number which represents only the total of the scores on each of the parts of the test. Raw scores have little absolute significance and cannot be compared from test to test since the size and the equality of the units used are unknown. It is difficult, for example, to interpret in any meaningful way the score of 41 points on an intelligence test. Raw scores can be made meaningful by comparing them with similar data previously acquired or by conversion of these raw scores to some form of derived scores. By using converted scores, that is, derived scores, rather than the original raw scores we are able not only to compare the child's ability or achievement with that of other children but also to compare his status in one trait or ability with his own status in another trait or ability. The conversion of scores also makes it possible to obtain a composite or over-all measure which represents in a single score a pupil's achievement in several subject areas.

Which type of derived score should be used in a given situation depends on the kind of interpretation that is needed. Scores on intelligence tests are usually converted into mental ages if a measure of mental level is desired or into intelligence quotients if the rate of mental growth is needed. Raw scores can be transmuted into age or grade units—they are then called age equivalents or grade equivalents, respectively—to enable comparison of the pupil's score in terms of the scores that children of various ages or grades receive on that test. (See NORMS.) When all that is wanted is a measure of the student's relative standing in his group or in a representative group of students who have taken the test, it is appropriate to convert the raw score into percentiles (*q.v.*), standard scores, or some similar measure in which scores are expressed in terms of their variation in standard deviation units from the arithmetic mean or some other agreed upon point in the distribution.

The *standard score* or *standard measure*,

often referred to statistically as a *z-score*, indicates the number of standard deviations by which, and the direction in which, the corresponding raw score deviates from the arithmetic mean of the distribution of raw scores. The formula for deriving this measure is

$$z = \frac{X - A.M.}{S.D.},$$

where X refers to a particular raw score in a distribution of raw scores and A.M. and S.D. refer respectively to the arithmetic mean and standard deviation of the distribution. Thus a standard score or z-score of 2.0 is two standard deviations above the arithmetic mean of the distribution, while a standard score or z-score of -1.5 is one and one-half standard deviation below the arithmetic mean of the distribution. In order to avoid using negative numbers, standard scores are sometimes computed from a zero point, usually fixed as being at the point three standard deviations below the mean. When this is done, the standard scores are all positive and express the number of standard deviation units that the given raw score is above the zero point. (A score at the mean of the distribution, for example, would be converted into a standard score of 3.0.) Although standard scores are not necessarily restricted to distributions which are essentially normal, they are more easily interpreted and more meaningful when so applied than when they are applied to skewed distributions.

When raw scores are converted into standard scores, an arbitrary score is in effect substituted for the original scale. Standard-score scales have several values not characteristic of raw-score scales. When the distribution is essentially normal, they afford a definite concept of the placement of each score in the series, they have various significant uses in statistical methodology, and they make possible the combining of scores from several tests into a reliable composite score. Percentile scores, which are counting but not arithmetical scores, cannot be averaged to obtain a reliable composite score; standard scores, however, can be averaged to produce a reliable composite measure.

Various other types of derived scores are based on the same principle as is the standard

score. Perhaps the best known of these is the T-score, for which the formula is

$$T = \frac{10(X - A.M.)}{S.D.} + 50,$$

where X, A.M., and S.D. have the same meanings as were attributed to those symbols above. Thus a T-score of 70 is two standard deviations above the arithmetic mean of the distribution, and a T-score of 35 is one and one-half standard deviations below the arithmetic mean of the distribution. The advantage of the T-score lies in the fact that, in large measure, the use of negative and decimal numbers is avoided.

Provision is made in many standardized tests for immediate conversion of raw scores into some form of derived scores based on the arithmetic mean and the standard deviation of the group of pupils on which the tests were standardized. Although the procedures used in obtaining the derived score scales for these tests differ in various minor ways, and numerical values do not necessarily have identical meanings for all, such derived measures as scaled scores, converted scores, and equated scores are similar in their usual method of derivation and in their meaning to standard scores and T-scores. For standardized tests of these types, the scaled scores, converted scores, or equated scores have more meaning than do their comparable raw scores, while percentile tables for various grade or age groups usually permit of still more exact interpretations for specific groups of pupils.

J.R.G.

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SCRAPBOOKS. A pupil scrapbook usually consists of a collection of pictures, maps, cartoons, graphs, etc. cut from magazines or other sources and mounted in some kind of bound or loose-leaf notebook, usually in an organized plan which parallels the work of some course. Though it has been used in all subjects and on all school levels from the primary grades through college, it is used most frequently in secondary school social science and English classes. The primary value claimed for the scrapbook as an edu-

cative device is that it encourages the student to look for illustrative material pertinent to the subject being studied. In a unit on the use of Greek mythology in modern writing, for example, advertisements using classical allusions can be cut from magazines and newspapers and placed under appropriate headings in a scrapbook. When used as a functional part of a planned unit, it can be very helpful in enriching and motivating the subject under study, especially if the students share their material with the others in the group. However, the scrapbook can represent a serious waste of energy if it is merely a haphazard conglomeration of unorganized material having little pertinence to the subject being studied, or, if a premium is put on elaborate make-up at the expense of a planned, helpful content. In an increasing number of classes, the teacher is encouraging the students to keep scrapbooks as a cooperatively planned undertaking, rather than requiring each student to prepare one for himself.

T.M.R.

SEATING, CLASS. The seating arrangement in the classroom will depend on the activities to be carried on and the needs of the students in relation to these activities. If, for example, the work of the day is to revolve about the teacher's expositions, then the students with hearing and vision problems should be seated closest to the teacher. On the other hand, an informal group discussion in which the students take a major part requires that those weak in hearing and vision be seated as close to the center of the group as possible. Any inflexible arrangement that is to hold for all times and all activities is inadvisable.

The possibility of flexible seating arrangement is often limited by the immovability of fixed seats and desks. The informal circle arrangement, for instance, which is often favored for group discussions, is impossible under conditions in which seats are immovably directed toward only one side of the room. All learning needs can be satisfied only when easy readjustment and rearrangement of seating equipment are possible. (See **SCHOOL FURNITURE.**)

C.M.R.

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SECONDARY EDUCATION

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SECONDARY EDUCATION. Secondary education in this country is usually regarded as society's organized effort to educate its adolescents. It comprises the junior high school (*q.v.*) and senior high school and in some cases the junior college (*q.v.*). Thus ages 12 to 18 (sometimes 12 to 20) are usually included. Chronological or physiological age therefore is as a rule the limiting factor in defining the scope of secondary education.

Aims. H. C. Morrison attached another definition during the third decade of this century. He thought of secondary education in terms of intellectual rather than physiological and social growth. The secondary education period begins, Morrison assumed, when an individual has acquired the primary adaptation necessary to develop the "art of study." Those adaptations—reading, number and primary social—could be expected by the beginning of the fourth grade. The pupil's intellectual behavior after this period, it was contended, differed from that of the older student in degree rather than in kind, whereas his behavior before this period differed in kind. In thus defining secondary education Morrison unwittingly reverted to the European pattern and disregarded the tendency in the United States of emphasizing the social characteristics of the individual. The Morrison definition was not widely accepted in practice, even though certain phases of the mastery technique associated with it stimulated general interest for a time.

The fact that society generally has refused to confine the meaning of secondary education to intellectual growth is highly important. When it insisted that the schools must give due regard as well to the physical, social, and emotional development of the individual, it defined secondary education in such a manner as to condition its further organization, curriculum, method and relations with the nonschool world. In other words it oriented the secondary school away from the European pattern, which we had been wont to accept as ideal.

Today secondary education has gradually accepted, at least in theory, the principles

that the purposes of secondary education are to:

(1) enable all individuals to grow from childhood to adulthood,

(2) enable each adolescent to develop his potentialities to their maximum degree,

(3) insure that each adolescent makes a vocational choice that satisfies his interests and challenges his capabilities,

(4) insure that he secures such orientation to his vocational choice as will enable him to make an effective adjustment to it,

(5) provide such orientation to his community and the world at large as will permit him to take an intelligently active part in the solution of civic problems,

(6) provide such orientation to family life as will enable him later to assume an intelligent role as a parent, and

(7) accomplish the above purposes with a full realization that only as adequate consideration is given to the physical, social, emotional, and mental nature of the individual will the resulting growth enable him to function with optimum effectiveness.

That the above aims have not been generally accepted in practice and are even not clearly in the minds of all as suitable objectives is indicated by the fact that during the fourth decade of this century the Department of Secondary School Principals of the National Education Association outlined the issues in, and the function of, secondary education. Among the issues were included such questions as:

(a) Shall secondary education be provided at public expense for all normal adolescents or for only a limited number?

(b) Shall secondary education provide vocational training or only general education?

(c) Shall secondary education present merely organized knowledge, or assume responsibility also for attitudes and ideals?

A glance at the development of secondary education in this country will reveal the reason for the lag between practice and theory.

Development. Initially, secondary education was primarily college preparatory and for only a highly selected group. It was selected, however, not by design but because the fashion of thinking that the secondary school was the "people's" school had not as yet been generally accepted.

By the middle of the 19th century the

demands of a pioneering people had forced certain practical subjects into the curriculum in competition with the academic courses. These had their origin in the academy movement, which spread through this country during the first half of the 19th century, and which was the first expression on a large scale of the will of the people for a form of secondary education that fitted our democratic ideals.

Educators interested in college preparation were alarmed during the last years of the 19th century by the many short courses of questionable disciplinary values. An academic curriculum comprising English, Latin, mathematics, history, a modern language, and science was recommended as the acceptable program for all secondary schools. By this means the emphasis again was shifted from secondary education as a people's movement to secondary education as a college preparatory concept.

During the second decade of the 20th century the junior high school came into existence and the Committee on the Reorganization of Secondary Education made its Seven Cardinal Principles report. In addition, the secondary school found a rapidly increasing population in its midst. This tendency toward democratization suggested the need for a program more closely articulated with the needs of the less highly selected group of boys and girls.

Various industrial and business groups in need of more trained workers knocked at the doors of secondary education, and vocational courses were introduced in constantly increasing numbers. The federal sponsored and supported Smith-Hughes provision for vocational education gave impetus to vocational education. More recently the George-Deen Act, also providing financial assistance from the federal treasury, encouraged the introduction and expansion of distributive education. Furthermore, adult pressure groups concerned about health, thrift, citizenship and other social-civic values also wanted their peculiar interests represented.

These many demands on the part of the public, expressed either through local pressure groups or through state and federal legislation, have created a type of secondary school very different from that of the early part of the century.

Legal status. Students of secondary education must realize, however, that the status of the secondary school as part of society's effort to perpetuate the democratic tradition is not fully settled in the minds of all influential citizens. It is therefore likely to be a recurring issue, particularly when avenues of national economy are sought.

In 1876 the Supreme Court of the country was asked to rule on the legality of taxing people for the support of secondary education. It was contended by the opposition that it was the purpose of the pioneers in the country to provide education of only elementary grade for the masses. The decree, in what is known as the *Kalamazoo case (q.v.)*, favored the right of society to tax itself for public education beyond the elementary school level. This decision, the tendency of youth to seek increased educational opportunities at public expense and the practice of society during period of economic stress to pass legislation that postpones the age at which youth may leave school, thus removing young people from the competitive job markets—these insure that secondary education at public expense for all youth has come to stay in this country.

But how much education, for how long, and of what kind, are questions which closely affect the cost of secondary education and are therefore likely to be debated recurrently for some time to come.

Organization. For example, shall public education be provided only until the end of the 12th grade (or in some states the 11th grade), or shall it be extended through the junior college years? or even into the four-year college and university for those who can profit from it? Shall a community establish a vocational school to give training in skills needed in industry, agriculture, business?

In 1910 there were 4,249,000 youths in the country between the ages of 14 and 17. Of this number 915,000 attended public secondary schools and 117,410 the private secondary schools—a total of 1,032,410, or 25 per cent of the youth at that time. The percentage had increased to 65 per cent by 1930 and to 73 per cent by 1940.

The 1940 census showed 9,720,600 youths between the ages of 14 and 17. Of these, 6,601,400 were enrolled in public secondary schools and 457,700 in private secondary

SECONDARY EDUCATION

schools, a decrease of nearly 50 per cent in the proportion of youth in private schools.

These data reveal that not only has the proportion of 'teen age boys and girls who come under the influence of the secondary school increased rapidly in the last generation but the proportion who attend the public rather than the private secondary school is also increasing.

As a result of this increase in numbers, as well as of a growing emphasis on the needs of individuals, secondary education is changing its form of organization. Traditionally, it has been a four-year school superimposed upon an eight-year elementary school, and sometimes followed by a four-year private or parochial college. With the advent of the junior high school movement in the second decade of this century the original 8-4 form of organization was replaced by a 6-3-3 or 6-6 type of school.

The development of the junior college in certain sections of the country added two years to public secondary education. At first this created a 6-3-3-2 form of organization, but gradually a 6-4-4 plan is evolving. These plans of organization are designed primarily, however, for the program of general education leading to college admission. (See EDUCATIONAL LADDER.)

As society increasingly accepts public education as being concerned with vocational orientation, specialized training is brought to the fore. The vocational education may be two, three, or four years in length, depending upon the vocation for which preparation is sought. This preparation may be provided as an adjunct of general education in a comprehensive secondary school or in a school which specializes in vocational preparation. The vocational preparation may also be viewed primarily as training and retraining for special vocational activities, or as education, namely, as intelligent orientation to a general field of vocational activity.

No longer may we say therefore that the organization of secondary education must be of a 6-3-3, or 6-4-4, or any other type. Instead, its organization will become increasingly varied, depending upon the needs of the pupils and the demands of society for specialized education.

Another problem affecting organization arises from the size of the school unit. With

the emphasis on efficiency and consolidation and the resulting larger administrative unit, secondary schools of several thousand pupils are not uncommon in urban communities. It must be remembered, however, that the median-size secondary school in this country has less than 100 pupils. Increasingly, educators are becoming aware of the fact that the size of the social unit to which adolescents belong affects the potentialities for education inherent in the school. If the social and emotional development of the individual are as important as the intellectual, then the individual must experience social adequacy from his contact with his school association. He must have a sense of belonging, of imposing his will on the group at times, and also gaining reciprocal social values from the group. This is difficult in a school of several thousand pupils. As a result in some urban centers, a form of school organization is now coming into existence, referred to as a "school within a school". A pupil group of from 500 to 1,000 pupils has a separate administrative head, separate faculty, separate extracurricular program, separate social-civic existence. It is, however, part of a large administrative unit, sharing with other smaller groups certain parts of the school plant and school offering which cannot be provided effectively for each smaller group. Thus 5,000 pupils might well be housed on one school campus but have their intimate school relationships in from five to ten smaller groups, educationally independent of each other. Although this plan of organization is not yet general, it does exist in varying forms and is likely to become increasingly common.

Curriculum and methods. Originally the curriculum was solely college preparatory. In addition it was assumed that the subject matter, acquired, irrespective of the method of learning it, was of sole importance.

With the advent of the academy (*q.v.*) movement a noncollege preparatory curriculum came into existence. In addition to the usual academic courses, architecture, biography, embroidery, civil engineering, law, vocal music, mapping, mythology, surveying, topography, and other "useful" subjects, deemed to be valuable to a pioneering people, found their way into the secondary school offering. The reaction of the college-minded group of educators to this hodgepodge of sub-

SECONDARY EDUCATION

ject matter brought the academic college-preparatory curriculum again into prominence during the last years of the 19th century.

Until this time the philosophy of method had not affected secondary education. It was not until the early part of this century that Hinsdale, McMurry, Parker and others introduced the ideas of Herbart and Dewey into the secondary school. Initially, and in fact until very recently, method was dealt with as an adjunct to curriculum. The learning of facts was regarded as the end of education. Method was simply a means of making the learning of facts more palatable and effective. This emphasis on method introduced such techniques and devices as the project and problem, socialized recitation, Dalton plan, the contract, unit organization, supervised study, homogeneous grouping (*qq.v.*).

Another movement affecting the curriculum is now in the process of evolving. The progressive elementary school with its concern about the child and his well-rounded development is leaving its impression on the secondary school. A number of influences have made this possible. Perhaps the one most immediately effective is that the college is no longer a static institution. For more than a decade it has been increasingly responsive to influences other than tradition. College admission requirements have been liberalized. This fact lessens the effectiveness of the secondary schools' contention that a certain prescribed curriculum for all academic (college preparatory) pupils is *sine qua non*.

The Eight Year Study (*q.v.*) of the Progressive Education Association has helped still further the progressively minded secondary school to throw off its yoke of college admission requirements. This study also has encouraged curriculum experimentation in secondary schools. As a result, new curriculum patterns other than that of the traditional academic subject-type have come into existence in various parts of the country. The direction of this movement toward a new secondary school is not yet so clear as is the form of the new elementary school, but it seems quite likely that basic changes are in the making. The emerging high school no doubt will be more directly concerned with youth's adjustment to the world in which he lives.

This change in emphasis, from subject matter as the end of education, through the use of appropriate devices or method to make subject matter learning more effective, to the concept that the end of education is the growth of the individual, has been aided and abetted by studies of the adolescent. The more we know about the characteristic of the adolescent the more we become aware of the shortcomings of a subject-centered curriculum and the more we become inclined to favor an experience curriculum (*q.v.*), and when this transition has taken place method can no longer be thought of as independent of curriculum. The two fuse, and method as an entity disappears. Secondary schools are now experimenting with various forms of integrated curriculums. The core curriculum (*q.v.*) and the unified curriculum are emerging. They have hardly begun, however, to replace the compartmentalized subject curriculum, which is the traditional pattern for secondary education.

Guidance. When secondary education first became conscious of its function to prepare for vocations, vocational guidance as a process came into existence. When emphasis on proper educational orientation within the school came to the fore, educational guidance was thought important. When the social character of the adolescent became recognized as a concern for the secondary school, social guidance was born. Thus gradually the concept of guidance was broadened until today, at least in principle, it is practically synonymous with good teaching.

When education was thought of as adjustment of the individual to a static or authoritarian standard—college preparation, as a body of subject matter to be learned, and as fixed skills to be attained—the guidance counselor became the functionary whose duty it was to help an unadjusted individual to a greater degree of adjustment. He therefore assumed the important role of supplementing the effort of the teacher, who was working within the framework of a fixed curriculum, in helping the pupil to attain the objective set for him by the school.

When, however, the curriculum changed its emphasis from the subject to the adolescent and his growth as the end of education, the place of the guidance counselor changed. If he was needed at all, it was in a consulting

SECONDARY EDUCATION

and advising capacity and not as a separate functionary.

Control. As the secondary school expands its concept of the function of secondary education it reaches beyond its four walls into the community and the world at large. The youth who leave its doors and enter the world of the adult but who find this world forbidding to them are returned to the community unadjusted, or they roam about the country in search of security. Before and even during the depression of 1932-36 the secondary school concluded that these adolescents were no longer their concern; but they became a national problem and therefore a national concern. The federal government implemented N.Y.A. (*q.v.*) and C.C.C. (*q.v.*) functionaries to cope with the problem. These were financed, controlled, and conducted by the federal government.

Increasingly, the local secondary school has become aware of its responsibility in this matter. Opposition to the federal usurpation of what have been assumed to be the rights of the community and the state has been raised. The community feels that it would be able to handle the problem adequately if the money spent by the federal government were made available to the local school district.

Some educators, however, point to the fact that secondary education is still too largely concerned with the traditional pattern of imposing an authoritative compartmentalized subject curriculum. They also point to the lack of provision made by the secondary school for vocational, social and civic rehabilitation. Private and quasi-public institutions have come into existence to take care of social and economic misfits. These operate independently of the school in most cases. In other words, the secondary school discharges its responsibility to society by giving youth a diploma, which in many cases is meaningless when measured by the needs of society. The private and quasi-public welfare organizations salvage those whom society has not been able to absorb effectively.

Until secondary education expands the concept of its obligations to youth and to society so as to include what must be corrected by the federal government as well as by local social agencies, it cannot be given exclusive control of the educational responsibility to youth. Progress in this direction has been

made. Some secondary schools sponsor community welfare projects, conduct comprehensive programs of adult education, and even cooperate in parent education programs through the organization of nursery schools as experience laboratories for older youth. But when accomplishment is compared with need, a beginning has hardly been made.

Various suggestions have been made to cope with the problem. Perhaps the one offering greatest possibility for success is the establishment of a community advisory council consisting of representatives from the existing welfare organizations interested in youth and of citizen groups which are touched by youth in some form—home, church, industry, labor. If such a council would look realistically and efficiently at the problem of youth and the effect which his adequate adjustment has on the welfare of society, the community could be trusted with the responsibility for the control of secondary education. Until this is done, large divisions of civic life must exercise control to avoid emergencies such as existed in the decade preceding World War II.

The future. The post war period will no doubt see many changes in our concept of secondary education. Now that secondary education for all youth is the responsibility of the state, society must revise its concept of the aims and functions of its educational responsibility to youth. Such questions as the following will receive increased consideration:

1. Must secondary education insure constant vocational competence to the members of society? In periods of depression or vocational displacement, must the secondary school provide the means for vocational rehabilitation?

2. What must be the concern of secondary education with regard to other areas of life—economic, civic, parental, avocational, social? Must competence in these be assured in proportion to individual ability and the current needs of society? For example, if freedom from want is an objective of democratic society, does secondary education have an obligation to insure that each individual can use effectively the economic resources which society can make available?

3. Must secondary education insure that all youth are imbued with the democratic way of life so that democracy as the natural pat-

SECONDARY EDUCATION, COMMISSION ON REORGANIZATION OF

tern will be protected and constantly improved? In other words, is indoctrination of democracy—as fascism, nazism, and communism are implanted in the youth of certain other countries—an essential responsibility of secondary education? If so, how is this to be done so that proper regard is given to individual differences to insure that a maximum degree of self-realization will be satisfied?

4. If secondary education at public expense and for national welfare is accepted, shall responsibility for control and support continue to be vested in the state and locality, or shall larger support and control be placed in the hands of the federal government? In other words, are projects like the NYA and CCC the prerogative of the local school, or must the federal government oversee such projects to insure equality of opportunity and responsibility for all? J.B.

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SECONDARY EDUCATION, COMMISSION ON REORGANIZATION OF (National Education Association). This commission was appointed in 1913 by the National Education Association to look into the growing criticism of the college preparatory emphasis in the high schools resulting from the report of the Committee of Ten made twenty years before, or, as expressed by the then Commissioner of Education P. P. Claxton "to collect the best opinion in this country in regard to the aims and methods that should prevail in secondary education."

The creation of the Commission was stimulated by the report of another committee appointed by the N.E.A. in 1911 (Committee on Articulation of High School and College). This committee took the position that "the

satisfactory completion of any well planned high school curriculum should be accepted as a preparation for college."

Many reports dealing with the reorganization of courses of study and curriculums were made by it and its several subcommittees. These appeared as U. S. Bulletins from 1913 to 1922. The most frequently cited is the U. S. Bulletin, 1918, No. 35 presenting the Cardinal Principles of Secondary Education (*q.v.*).

Besides reports on each of the several subjects offered in secondary schools (English, social studies, science, music, home economics, etc.), studies dealing with moral values, part time education, vocational guidance, and high school building and grounds appeared under the commission's sponsorship.

Although much of the commission's pronouncement became controversial and did not have the immediate effect on school practice which was hoped, its accomplishments were far reaching in that they provided a new orientation for secondary education—away from the concept "what is good for college is good for life" toward the concept that preparation for living is insured through a program of education which encourages "complete living". (See SECONDARY EDUCATION.) J.B.

SECONDARY SCHOOL CURRICULUM, COMMISSION ON THE (Progressive Education Association). A commission established by the Executive Board of the Progressive Education Association in 1932. The need for such an organization grew out of the work of the Commission on the Relation of School and College, which was organized by the Progressive Education Association in 1930. In studying the relation of secondary schools to colleges, this commission felt the need for a more thorough analysis of the meaning and function of secondary education. The Commission on the Secondary School Curriculum was established to make an intensive survey of this special area, its chief purpose being to develop a program of research and planning that would clarify some of the basic problems of secondary education. Focusing its attention on the educational needs of all classes of youth, it was to suggest ways and means of studying the present curriculum and of evaluation how well it

met the needs of youth; and was to conduct experimentation in curriculum revision. The Commission analyzed the social values and purposes which operate in our society, did experimental work in selected schools where curriculum changes had been made, and, through various study conferences and curriculum workshops sponsored by the Progressive Education Association, studied the problems involved in making curriculum changes. To achieve its objective, the Commission selected two general approaches to the problem: (1) a study of adolescents and their problems from the point of view of the development of personality, economic responsibility, and social relationship, (2) a study of each of the major subject areas such as art, science, language, mathematics, etc., and of the way each area can contribute desirable educational experiences to the curriculum of the youth attending the secondary schools.

To facilitate this task several committees were established, one for each of the major subject matter areas and one for the study of the adolescent personality and development. Reports of these committees have been published from time to time, giving accounts of their procedures and findings. There is no general report of the entire Commission, but the publication *Reorganizing Secondary Education* serves as a key to the more specialized reports of each committee. This book, written by three members of the Commission, sets forth the common basic approach and philosophy of the Commission, its procedures, and the general findings resulting from its work.

The committee that was organized to make a study of adolescents consisted of educators, psychologists, physicians, sociologists, anthropologists, psychiatrists, and social workers. It gathered data directly from high schools and colleges, both public and private, in all parts of the United States. By collecting case histories it sought to discover information about adolescents which would give some insight into their behavior, maturation, and development.

The committees in each of the subject fields made a study and an analysis of their respective subject areas to determine their function in a program of general education. The findings and recommendations of these committees are reported in one or more of the publications listed below.

The commission suggests that (1) any reorganization in the program of the secondary schools should be based on the needs of young people; (2) desirable goals for a secondary school curriculum are to be found in the concept of the democratic way of life; (3) the rigidity of college entrance requirements tends to maintain the present emphasis on subject matter and subject courses in the high schools; (4) the broad subject areas such as science, social studies, art, etc., should be retained in the curriculum. E.O.N.

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SECONDARY SCHOOL PRINCIPAL —See PRINCIPAL, SCHOOL.

SECONDARY SCHOOL STANDARDS, COOPERATIVE STUDY OF. One of the difficult problems that have perplexed American education for several generations has been the articulation of the various levels of schooling that compose the American educational ladder (*q.v.*). While considerable difficulty was encountered in effecting a close tie between the elementary and the secondary schools, the transition between the twelfth grade and the first year of college presented greater complications. The former problem was met to some extent by the reorganization of secondary education, particularly with respect to grades seven to ten inclusive. The latter problem proved more difficult because areas not subject to unified controls were under consideration. (See ARTICULATION.)

SECONDARY SCHOOL STANDARDS, COOPERATIVE STUDY OF

It is interesting to note that all of the attempts at improving the work of the high schools have been in terms of the framework of local control. One of the chief devices for determining the adequacy of preparation of the graduates of high schools was the entrance examination imposed by the colleges. The gradual elimination of this procedure in most parts of the country became a responsibility assumed by secondary and collegiate leaders over a number of decades.

As long ago as 1871 the University of Michigan dropped the plan of entrance examinations in favor of entrance from certified high schools. It became the first agency for the evaluation of the high schools that supplied its freshmen. The principle was later adopted by a number of the colleges. Leaders in the secondary schools and colleges improved this program by organizing regional bodies known as associations of colleges and secondary schools. Over a period of time six associations were formed: The New England Association, The Middle States Association, The Southern Association, The North Central Association, The Northwest Association, and The Western Association. Some of the associations became accrediting agencies. (See ACCREDITING.) The New England and the Western Associations did not enter the field of accreditation. In the main, all of the associations gradually extended their interest to a consideration of all the problems common to secondary schools and higher education.

In the 1920's various leaders of the associations began to think in terms of constructing educational instruments to apply to the high schools so that a number of purposes might be served. One of these naturally was the relation between secondary schools and colleges. The problem had in it a number of possibilities for much wider areas of application than a simple measure of the worth of the graduates of high schools. Accordingly, a group of representatives of all the associations was formally organized in 1933. It became known as the General Committee and it posed the following questions:

What are the characteristics of a good high school?

What are the practicable means and methods to be employed to evaluate the effectiveness of a school in terms of its objectives?

By what means and processes does a good school develop into a better one?

How can regional associations stimulate secondary schools to continuous growth?

Realizing that a formidable task lay before it, the General Committee organized a full-time staff of specialists to work upon the devices that would indicate answers to the questions proposed. The experiment was labeled the *Cooperative Study of Secondary School Standards*. The work of building appraisal instruments that had validity and reliability involved a period of six years.

The staff, supported by funds advanced by the associations and by the General Education Board, and with the advice of leading educators, formulated eighteen bases for the consideration of secondary education. Out of these bases evolved a number of comprehensive and flexible criteria to evaluate the high schools at both junior and senior levels. Two hundred secondary schools of all types were selected for the purpose of trying out the early tentative forms of the measures. These were designed to be applied to the following areas: philosophy and objectives of a school, pupil population and school community, curriculum and courses of study, pupil activity programs, library service, guidance service, instruction, outcomes, school staff, school plant, and school administration.

The procedure adopted in applying the measures to a school was a unique one for American education. When a school leader made it known that he desired to have his school evaluated, all the necessary forms were sent to him well in advance of the time of the evaluation. He then set up a number of faculty committees to study the forms and to prepare the answers. In a number of instances the preparation of the forms covered a period of months. At an agreed time, a committee of educators, generally about ten to fifteen in number, came to the school. As a rule, they represented other school systems, the state department, and some of the colleges. The visitation period covered from two to four days, depending upon the size of the school. The committee examined the self-evaluations that the faculty committees had made and observed the educational processes in the school. It has been stated by those who have taken part in the evaluation procedure that the most important work of the whole

SECONDARY SCHOOL STANDARDS, COOPERATIVE STUDY OF

process had been carried out just before the visiting committee made its appearance.

The visiting committee was organized into working groups which were charged with the careful examination of the faculty reports. Near the close of the time involved in general visiting throughout the school, the visiting committees met with the faculty committees who had prepared the reports in order to be certain that mutual understanding existed regarding the reports. Another novel feature of the visiting committee procedure was a meeting with a group of students selected at random throughout the school. The purpose of the gathering was to observe the type of student present in the school and in a friendly fashion, to get the students to give reactions to the school procedures.

The head of the school, shortly after the departure of the visiting committee, received in graphic as well as in written form a report upon the work of the school. Frequently a number of the evaluations set up by the faculty committees were revised downward because many schools thought they were better than they actually were. The graphic scheme of reporting was another unique device constructed by the cooperative study directors. It consisted of a series of graphs fashioned after an ordinary thermometer. Along the sides of the thermometers were symbols which showed where a given type of school in any one of the six geographical regions would normally register. Each of the school areas mentioned earlier was described not only by a number of these thermometers, but also by one that showed the total cumulated and weighted score for the whole area.

The report of the work of the visiting committee to the principal became more often than not the inspiration for many faculty meetings. The purpose of such meetings was to examine the findings of the report and to suggest means by which the weaknesses of the school might be overcome. These meetings were often stimulating and frequently brought out the fact that many persons regarded the whole evaluative procedure as an outstanding educational experience.

Some of the results of the cooperative study were important for secondary education. School staffs became conscious of the necessity for a well stated and comprehensive philosophy of education for their particular

schools. The application of the measures proved a valuable in-service training means for all educational workers involved. Renewed and awakened interest in the problems of the schools, stimulated by the findings of the visiting committee, often found suitable outlet in series of professional faculty meetings, department meetings, and the like. By virtue of the organization of the faculty committees, departmental isolation was broken down and the school staffs worked together on schoolwide problems—a situation that promoted esprit de corps. Many leaders in colleges, state departments, and local school systems came to know and appreciate each other through the work involved in appraising a school. On the whole, in those sections where schools were evaluated secondary education was stimulated to greater efficiency in terms of a modern educational program.

The Cooperative Study of Secondary School Standards has not been applied universally. Although Colorado, Indiana, Kansas, Maryland, Ohio, and other states have manifested considerable interest, as evidenced by the schools evaluated, a number of states still have many schools that have not participated in the experiment. (See EVALUATION.)

P.B.G.

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SECRETARIAL EDUCATION. In the early days, secretarial education, both in the high school and in the private business school, was concentrated largely in the areas of shorthand, typewriting, bookkeeping, and grammar. Shorthand and typewriting were taught as separate subjects with little effort to develop transcription ability. Shorthand was almost exclusively taught by the deductive method with emphasis on copy-book perfection of outline rather than on facility of execution. To accomplish the objective of perfect outline, repeated practice on isolated words was generally used. The careful execution of individual outlines was later speeded up by dictation of context material. The publication of the Functional Method of learning shorthand turned attention of teachers to the possibilities of mastering shorthand by direct association.

Similarly, in typewriting the emphasis in elementary instruction was on the slow and accurate learning of isolated keys. Later in the course "speed practice" was begun. Present trends in instruction in both shorthand and typewriting are toward the fluent and rapid use of the skills, rather than upon accuracy of knowledge. The general tendency is toward integrated rather than analytical instruction.

Shorthand and typewriting in the high school were often taught as early as the ninth grade and continued through the four years. Recent tendencies in curriculum construction usually place the two subjects in the eleventh grade, with the idea that secretarial workers need to have their skills developed to occupational levels of competency at the time they leave school. It is also considered necessary that the secretarial worker have a good background of general education and of nontechnical business education.

The course in secretarial practice has been added to the curriculum. This course has for its purpose the integration of all the student's

secretarial learnings in a situation approximating as nearly as possible actual office employment conditions. It is in this course that such additional secretarial abilities are developed as voice-writing-machine operation, filing, and receptionist duties. Transcription training is becoming an increasingly integral part of secretarial education.

The upgrading of the specific secretarial subjects in the high school has been accompanied by an increase in the number of colleges, junior and senior, offering secretarial education on a two-year or four-year basis. The employment demands for more mature persons to fill secretarial positions, together with the relative lack of employment opportunities during the period 1930 to 1940, served to develop this trend. These factors, as well as the fact that the high school secretarial course has had unprecedented popularity with students, resulting in the enrollment of large numbers of unselected students in secretarial curricula, have served to establish somewhat the point of view that the high school prepares only for initial stenographic positions.

The private business school and the college are regarded as especially well adapted to educate secretarial workers. The private school, first in the field of secretarial education, has continued to render a valuable service in complementing and supplementing the education offered by the high schools and colleges. (See BUSINESS EDUCATION.) H.R.

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SELF-CORRELATION. Literally *self-correlation* is the correlation of a test or variable with itself. Traditional methods accomplish this by one of three procedures: (1) test-retest method, in which the same test, same form, is given in succession to the same group, with an intervening time between tests; (2) alternate-form method, in which two comparable forms of a test are administered to the same group; and (3) split-half method, in which the test is arbitrarily divided into two comparable halves and two scores obtained for every individual. The favorite way of obtaining comparable halves is the odd-even division—odd-numbered items in one half, even-numbered items in the other. More recently, procedures based on the inter-correlation of items themselves, which tend to avoid objections generally leveled at other methods have been elaborated by Kuder and Richardson. (G. F. Kuder and M. W. Richardson, "The Theory of the Estimation of Test Reliability," *Psychometrika*, 1937, 2, 151-160.) The goal of these procedures is to find an estimate of *reliability* (*q.v.*) of the test or measuring instrument. The self-correlation of a test is taken as its measure of reliability. J.P.G.

SELF-EDUCATION. Any effort made by an individual for the conscious purpose of improving himself in knowledge, understanding, skill, habit, attitude, or ideal. Purposeful reading, self-instituted and directed exercise, attendance upon lectures or musical concerts, visits to museums, conscious and planned improvement of personal qualities are among the countless avenues of self-education. Self-education should be distinguished from ordinary play or recreation in that it has a definite educational purpose and is not just a matter of enjoyment. Self-education should be distinguished from school education in that it is self-instituted and self-motivated. Both of these distinctions are, of course, not absolute but matters of degree. Obviously, there can be both fun and self-motivation in formal school-directed education. Efforts at self-education have sometimes been labelled "self-improvement," and, as such, have been seriously questioned by educators and psychologists. The criticism has been directed chiefly at priggish and unrealistic attempts at the improvement of broad traits without regard to the fact that traits

arise as the integration of many specific actions. Consequently, the success of self-education depends upon (1) an educational goal defined in terms of specific ends to be reached, (2) strong motivation, (3) definition of things to be done that the individual *can* do and that are related to his goal, and (4) active effort by the individual. G.E.H.

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SELF-GOVERNMENT. Any plan of school administration which provides that pupils participate in the government of the school may conceivably be labelled "self-government". There are few, if any, schools, however, in which the pupils are entirely self-governing. In elementary schools the most common plan of self-government involves: (1) room organizations, with each room having its own officers, (2) a school council of room representatives and teachers, (3) school officers, usually elected from the upper grades. Secondary school student government usually follows a similar pattern with the home room being the smallest representative unit. In colleges the student council is more apt to be made up of representatives from the various clubs and the class organization. This type of student council is also found in some secondary schools. Sometimes the type of organization has been patterned after the national, state, or municipal government, as in the "School Republic", which was first organized in a New York City school in 1896 by Wilson L. Gill. Such elaborate organizations have not proved as useful as simpler systems adapted to local need.

In almost all schools having some form of self-government, every student is automatically a member of the school student body and entitled to participate in the government of the school to the extent provided for by the plan in his school. It is generally understood that the powers of student governing bodies are delegated powers. In fact this is explicitly stated in many student council constitutions. Ultimate responsibility and authority lie with the head of the school—principal, president, or governing board.

What a student government organization does, depends upon the extent of authority delegated to it, the quality of its leadership, and the peculiar needs of the school. Such

bodies frequently play a large role in the administration of extra-curricular activities. They usually participate in assembly programs, run class elections, stimulate student enthusiasm for athletic contests, arrange social affairs, and in many ways assist in the maintenance of morale. Frequently a student council deliberately sets out to change public opinion in the school, often at the suggestion of the principal. Fretwell¹ has given a "functional classification" of 114 student council activities.

Student participation in school government is justified chiefly on the ground of its educational values, especially in the training provided in citizenship and the development of leadership qualities. There can be little doubt also of the value of such participation to those responsible for administering the school. The school runs more smoothly for the good spirit and work of the pupils when they have a part in its operation.

The limitations and dangers of pupil-participation in school government are: (1) Exploitation of students by school administrators. It is possible to pervert a student government organization to an administrator's ends. (2) Inadequate training of students in the choice of leaders. Election of the school hero to responsible position, regardless of his ability, is an example of this danger. It can be offset by proper education. (3) Failure to define the source and the limits of the student government's authority. (4) The tendency for student government to copy the worst rather than the best features of political life. (5) Impatience with democratic procedures, especially on the part of school administrators. These dangers are all subject to control.

The success of pupil self-government depends largely on the degree of enthusiasm and vision of the principal and teachers. A plan of pupil self-government should be viewed not so much as an administrative convenience or inconvenience but as an opportunity, at the cost of time and effort, to give children the experiences that will help them to gain an insight into the needs and values of democratic processes. (See STUDENT COUNCIL.)

G.E.H.

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SELF-MARKING (TEST PROCEDURES). Accuracy and speed of scoring may be markedly increased by making use of automatic scoring devices. Tests using self-marking techniques are so arranged that correct responses are readily compared with an accompanying key, which is hidden from the subject. Thus, one popular self-scoring device uses carbon paper to transfer the subject's response (an X in one of five squares) to the key sheet, which shows the position of the correct answer by a small printed square. The subject's score is then easily computed by counting the number of squares on the key sheet in which there are X's. Another device requires the use of a stylus. The subject is asked to indicate his choice of answer by making a pin hole in one of a number of squares. At the same time, he makes a pin hole in the key sheet, which is placed under the answer sheet. The correct answer is indicated on the key by means of a single square in the appropriate position. The subject's score may then be computed by totaling the number of squares on the key sheet which have pin holes in them. J.J.

SEMANTICS IN EDUCATION. Semantics is that phase of the study of language which is concerned with the meanings of words. As the meanings of words include all the ideas and feelings that men have ever expressed and all the external objects and events they have ever discussed, the scope of semantics is vast. Theoretically, it comprehends every branch of human activity which is related to language; and one of the significant characteristics of twentieth-century thought has in fact been the attention paid by students in many different fields to the semantic aspects of their subjects. As C. W. Morris points out in *Foundations of the*

SEMANTICS IN EDUCATION

Theory of Signs, "It is doubtful if signs have ever before been so vigorously studied by so many persons and from so many points of view. The army of investigators includes linguists, logicians, philosophers, biologists, psychopathologists, aestheticians, and sociologists."

In practice, however, students of semantics have found it impossible to explore the meanings of words in their entirety and have limited themselves to the study of certain relationships between words and the meanings they express and communicate. They have been especially concerned with studying the relationships between words and ideas; words and external reality; various meanings of the same word; the meanings of words and the contexts in which they are uttered; words and the neurological activity of the individuals who use them; and words and the social activity of human groups.

The four schools of semantic thought which have probably been most influential in modern education are (1) the general linguists, (2) the mathematical-physical theorists, (3) the school of I. A. Richards, and (4) the school of Alfred Korzybski. (1) Students of general linguistics have been most concerned with the historical aspects of semantics. They have traced the socially-accepted meanings of words as these have changed through history and examined the semantic relationships between one language and another. Their emphasis has been on etymology; they have studied "vocabulary in motion," and stressed the fact that meanings are not static but in process of change. This emphasis is expressed in dictionaries organized to show changes of meaning, notably *A New English Dictionary on Historical Principles*. (2) Mathematical-physical theorists have been especially concerned with the problems of limiting the meanings of words so that they will be stable for purposes of scientific communication. Recognizing that meanings are normally psychological events and that vocabularies are "in motion," they have sought devices to objectify meanings. One such device is the formulation made by P. W. Bridgman of "operational meaning," that is, the assumption for scientific purposes that the meanings of certain terms are only certain specific and observable actions, and that any other responses to these words are to be regarded as irrelevant. (3) I. A. Richards and his

followers have made a special science of meaning and its interpretation. Emphasizing the symbolic nature of words, they have stressed the fact that words are capable of conveying a multiplicity of meanings, that any particular meaning depends upon the context in which the word is used, and that the proper interpretation of meanings necessitates an awareness of the subtle and inter-related way words work. (4) Alfred Korzybski and his Institute of General Semantics have called attention to the close relation between language and the psychological activity of the individual nervous system. Discarding the term "meaning" as inadequate, Korzybski has described words as the semantic reactions of human beings and insisted on the close correspondence between (a) the symbolic picture or evaluation of the external world which is implicit in the words one uses and (b) one's actual adjustment to the world. To distinguish his system from a mere study of etymology or of isolated word meanings, he has called it General Semantics.

Students of semantics are agreed in viewing words not as static entities but as phases of human activity. Words are to be sharply distinguished from that which they symbolize, as the word "dog" is not the same as an actual canine. The fact that dictionaries can record verbal definitions of words is useful, but may be misleading if one does not understand how dictionaries are made. The reality of verbal meaning is to be found, not in the word itself, but in the symbolic activity of the human nervous system. This symbolic activity may or may not communicate an accurate picture of that which it attempts to symbolize.

The influence of semantics on American education began to make itself felt definitely in the 1930's, not as a new subject in the curriculum, but as a new emphasis which affected many subjects. In general, it brought an increased sense of the importance of language together with a heightened sense of the dangers of verbalism. Teachers of reading put less emphasis on isolated words and phrases and more on the relationship between meanings and the experience of the reader. Teachers of composition increasingly viewed language growth as closely related to the development and expression of real meanings in the experience of the child. Teachers of mathematics saw mathematics as a type of

linguistic behavior and helped students to analyze the assumptions implicit in mathematical terms. Teachers of social studies helped students to understand the semantics of propaganda. Especially in the colleges, there was a revival of interest in rhetoric. Early in the 1940's a number of teachers and institutions, notably the Institute of General Semantics, reflecting Korzybski's point of view, and the Orthological Institute, reflecting I. A. Richards', were developing teaching materials for direct instruction in semantics; but the most important educational influence of semantics up to that time was indirect.

T.C.P.

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SEMESTER HOUR—See CREDIT.

SEMI-ANNUAL PROMOTION — See PROMOTION.

SEMI-INTERQUARTILE RANGE — See VARIABILITY.

SEMINARS. Seminars developed in American higher education with the advent of graduate study and research, probably in the 1870's. They are small, informal groups of not more than perhaps twenty students with one or more professors, usually assembling not oftener than twice a week. Their main purpose is to provide unhurried, intimate discussion of advanced study by professors and students specializing in the same field. Frequently they are used for preliminary discussion of thesis subjects being studied for graduate degrees. They are also used for instruction in research techniques, for discussion and study of a professor's research or special interest, and incidentally for social purposes. Since they are small, their procedure and atmosphere tend to be informal. Curriculum

credit is usually, if not always, given for them. While most of these characteristics are almost universal, seminars vary in detail from university to university and from department to department.

Seminars have been used also for upper-class undergraduates, especially in honors plans. There they retain their characteristics of informality, discussion, specialization, and individual study.

Seminars have all the benefits of small-group instruction, and have been the forerunner of plans for informality and individualization in college instruction, as well as of discussion groups, workshops, and the like.

M.G.F.

SENSE REALISM—See REALISM.

SENSE TRAINING. The necessity for training the senses has been emphasized by psychologists of widely differing views regarding sensation, perception, knowledge, and the relation of these to each other. Whatever the difference in theory, there is agreement that sense training must result in the ability to make finer discriminations with respect to shape, size, sound, rhythm, odor, weight, brightness, color, feel, distance, etc., and in the attaching of valid meaning to sensory impressions or perceptions. It has been found that verbal learning without a background of direct sensory experience remains meaningless and unusable to a great degree. Equally inadequate are such formal exercises for the training of sensory discrimination as are used in some kindergartens.

The best training arises when the child meets situations in which sense discriminations are necessary for the attainment of his purposes. In the ordinary course of living, the child gives himself a good deal of such training. Adults can help by providing the child with a wide variety of material for his exploratory and creative play activities and by widening his physical environment to include more and more kinds of indoor and outdoor experiences.

Growth in the fineness of discrimination does not proceed evenly for all the senses. It is a general principle, however, that rough outlines of wholes are perceived before details are discriminated and that fine discrimination has as much to do with interest as with sense acuity. Thus a mother who can

discriminate between, and attach the proper meaning to, different varieties of her baby's crying may be unable to distinguish the various sounds of different motors which a mechanic can differentiate immediately.

In the case of the physically handicapped, where the sense most commonly depended upon for meaning cues is deficient, another sense must be trained to get these meanings. The deaf use the visual cues of lip-movement to understand what another person is saying, and the blind use touch cues in the reading of braille. The abilities which sensory-handicapped persons develop only emphasizes the fact that sensory discrimination improves most as the need for finer discriminations arises.

It may be difficult for the teacher of today to realize that at one time educational controversy was concerned not only with regard to how sensory discrimination can be made more acute and how ideas are related to sensory experience, but also with the question of whether the senses need enter the educational process at all. For centuries the schools were concerned primarily with words, and the reading and imitation of the Greek and Latin classics and of religious literature.

The actual use of observation and sense perception was an innovation recognized as such in the sixteenth, seventeenth and eighteenth centuries, for it was a long time before the movement took hold in education practice. From Francis Bacon's rediscovery of the method of science and his emphasis on the inductive study of nature as the foundation of education, and Comenius' method of learning through observation, to Pestalozzi's denunciation of verbal rote memorization and his advocacy of object-teaching (*q.v.*), to Herbert's systematic formulation of an inductive-deductive pedagogic method which included sensory perception as a basic element, to John Dewey's emphasis on experience as the foundation of education—this was a very long period indeed. Yet, in spite of the pragmatic nature of science and the prestige which science holds in the modern world, teachers are still largely depending upon verbal techniques, and the experience curriculum, still known as the "new education", is having a difficult time to do more than just edge its way into the majority of schools. B.B.F.

SENSORY AIDS — See AUDIO-VISUAL AIDS.

SERVICE LOAD — See PUPIL-CLOCK-HOURS; TEACHER LOAD.

SEX DIFFERENCES. The term *sex differences* is used in psychology with reference to differences between the two sexes, considered as groups, in various traits and behaviors. The term is applied equally to differences that are innate and to those that are mainly or altogether due to pressures of the culture. An analysis of the origins of the sex difference as found must be made for each specific type of difference. Studies of young children, of persons at various age levels, of groups in various parts of the country and in different countries and cultures and periods of time are all needed to determine the extent to which the difference is biologically conditioned, so that it will not lend itself to environmental modification. Reported differences are usually in terms of a comparison between the averages of each of the two sexes, though range and distribution may also be compared. On the biological side stands the fact that girls mature physically more rapidly from birth to adolescence than boys. Girls, on the average, walk and talk earlier than boys, and in childhood their size and strength is equal to that of boys. It is in adolescence that great divergence between the two sexes in size and strength begins to take place and the girls, as a group, fall behind the boys in any activity which involves large muscle work, though still maintaining a lead where small muscle coordination is needed. More boys seem to be left-handed, and color blindness among males affects, according to varying estimates, from four to seven per cent, while it is less than one-half of one per cent in females.

With regard to general intelligence, numerous studies show that there are no reliable sex differences in average intelligence quotients of large groups of school children. There are differences, however, on parts of the test. With regard to both younger and older age levels, the girls are better in the verbal parts; the boys, in the mathematical. In tests of memory, the girls are also slightly ahead. It is important here to emphasize that when a *significant difference* (*q.v.*) is reported, it does not mean that the difference

SEX DIFFERENCES

is significant in terms of its size. In these instances, the term *significant* is used in a statistical sense and means *reliable*, with no reference to its importance. A very slight sex difference of no import whatsoever may be a "statistically significant" difference. Furthermore, in applying the concept of sex differences in education, the great overlapping in distribution of the two sexes needs emphasis. Because of this overlapping an individual cannot be characterized with respect to a given trait simply on the basis of his sex membership, but he must be examined as an individual with respect to that trait. Bearing this in mind, we can look at differences which have been found with regard to school achievements. In general educational progress, girls are ahead of boys in all grades from the primary grades of the elementary school through college, though the difference is least in college. Boys have been reported as being better in arithmetic, nature study, science, history, and literature; girls are reported as superior in reading, language usage, spelling, handwriting, and art. College men have been reported as superior in mechanics and science; college women, in arts and letters. The fact that at one time boys are reported as being better in literature and at another time that girls excel in arts and letters, is a warning that generalizations derived from specific test differences must be made very carefully. One generalization that has been made repeatedly is that girls are better when quickness or speed of adaptation is required; boys, when reasoning is involved. In the field of attitude and emotion and interest, the divergence from adolescence onward is often marked. While studies of American preschool children have shown no sex differences in sympathy, women are commonly more expressive of active sympathy than men. They are also more ready to talk about their emotions and to confess their weaknesses. How much this is owing to glandular changes due to sex maturation, and how much to cultural traditions cannot be determined. In our culture as in other cultures, distinctions are early and forcibly drawn between the socially acceptable activities and attitudes for males and females. These cultural conventions may even be in large measure responsible for the boys' superiority as a group in arithmetical ability and mechanical aptitude. Studies

made by the anthropologists among primitive groups show that occupational interests and such social attitudes as aggressiveness and submission may be distributed in contrary ways in different cultures.

The rôles of the sexes in society is a central force playing upon boys and girls from early childhood. "This is for girls," "This is for boys," "This is sissy", "This is tomboyish" are some of the earliest judgments, restrictions, and encouragements placed upon children's behaviors. Sex differences may be created where none would occur as a direct result of constitutional sex differences, while slight differences may be widened enormously. Even when discriminations are legally or officially removed, the mores may continue to carry the sex traditions for several generations and produce almost as great a sex difference as heretofore. The educator is thus faced with both a challenge and a problem. The problem is one of determining in the light of present social trends and future indications, what attitudes, abilities and interests it would be best for each of the sexes to acquire. The challenge is one of seeing that differences are eradicated or widened in the light of what would make for the best social adjustment.

Educators have had numerous opportunities in recent years to see how easily modifiable are some of the interests and abilities which have been regarded traditionally as indicative of differences between the sexes. When classes in household arts are opened to boys as well as to girls, many boys are as interested and as competent in that subject as are the girls. Similarly, increasing educational and vocational opportunities for girls reveal that many girls are as interested and as competent in mechanical operations as boys are.

Some of the laymen's, and even the teachers', fallacies concerning the degree of sex differences in interests and abilities stem from a misinterpretation of the results of such investigations as have been conducted. When boys are reported as being superior to girls in arithmetic, it is easy to conclude that all boys are superior in arithmetic to all girls. Though the investigator spoke only in terms of average scores for large groups of boys and girls, the layman applies the conclusion to individuals. The outstanding characteristic

SEX EDUCATION

of statistical studies of sex differences is the great degree of overlapping of abilities and interests that is revealed. Although the average score in arithmetic may be greater for the boys than for the girls, there are a large number of girls who are superior in arithmetic to the majority of the boys. So great is the overlapping of the sexes in the abilities and interests which enter into school experiences, that they afford the educator little guidance in planning a separate program for boys and girls. To be sure, the educator must continue to make appropriate adjustments for physiological differences and for differences in the rates of growth, as well as for the differences necessitated by current social and economic conditions. B.B.F.

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SEX EDUCATION. Sex education represents a society's attempts to help the child in three related ways. First, most children inevitably ask questions about matters of sex. Sex education involves efforts to answer these questions helpfully and sympathetically. Second, every well-adjusted person must achieve a wholesome acceptance of sex in its proper perspective in his life. Sex education involves efforts to lead the child to this balanced perspective. Third, in modern society the adult is expected to adhere to certain standards of restraint and of respect for others in his sex life. Sex education involves teaching the child to accept reasonable restraints and to fit his pattern of living into the demands of society.

The fact that there are wide differences of opinion about how these three goals should be achieved, in no way helps the individual child or relieves society of its responsibility for sex education. The motive for much sex education has sprung from concern over venereal diseases and their spread. There can

be no doubt that the currently growing frankness about the venereal disease problem makes intelligent sex education more possible. This concern for the physical results of illicit relations naturally tended to make the earlier efforts at sex education largely a matter of teaching the physical factors in sex and the dangers of illicit sex relations. In fact a good deal of the early sex education was a matter of trying to scare children into virtue.

More recently it has seemed that a broader approach to sex education is imperative. A number of conditions have pointed to this conclusion. One authority has listed six factors that have contributed to this concern: (5. p. 193) "(1) the new and freer position accorded to women; (2) the mobility which makes it easy to escape surveillance and to attain anonymity; (3) the development of prophylactic and contraceptive technics; (4) new points of view in psychology, especially the psychoanalytic studies; (5) the host of sex stimuli found in cinema, theater, advertising, popular magazines, and songs; and (6) differences of opinion on matters of conduct upon which there was once, whatever practice may have been, a practical unanimity". Clearly these conditions point to the fact that sex education must be broader than a smattering of physiology and morality. Sex education has become the concern of sociologists, economists, recreation leaders, teachers, and psychologists, as well as of physicians, clergymen, and parents.

Objection to sex education has arisen from a number of sources. Some church leaders have objected to any sex education other than that provided by parents and clergy, lest the child be taught sex ideas contrary to church doctrine. Similar objections to sex education in schools have come from parents who have held it to be their prerogative albeit there is ample evidence that parents generally neglect to give adequate sex instruction to their children. Educators have objected to being asked to provide sex instruction because they are afraid of conflict with religious objections and because there are few teachers adequately prepared by training, experience, and temperament to do the instructing.

There is fairly general agreement that an adequate program of sex education should include the following elements:

1. Careful and sympathetic attention to the

child's questions regarding sex whenever these questions arise. The child will show curiosity about sex in the pre-school years. Parents must be prepared to meet these questions. Most important is a sane attitude on the part of parents toward the child's curiosity and toward his early sex play. It is far more necessary that the child develop a wholesome attitude toward sex than that he be fully informed about the physiological aspects of sex and reproduction.

2. Adequate and stimulating opportunities for play and recreation throughout childhood and adolescence. Abnormal sex interest and perversions often arise from boredom, from nothing to do but to turn one's interest in upon one's self.

3. Reasonable attention to sex as a factor in the various subjects of school instruction. Sex is a social and psychological phenomenon, as well as a physiological fact. It should be given attention as an element in the study of social living and in literature, as well as in hygiene and physiology. There is no reason to believe that intensive sex instruction is desirable. Normal, unemotional recognition of sex as a factor in human living wherever it may be faced will supply the child's need for information in a more natural way without over-stimulating his interest in sex.

4. Provision of adequate guidance and competent counseling service for children in school and out. In adolescence, particularly, young men and women often feel a strong need for sympathetic counsel from someone other than their parents. This is true even when the parent-child relation is good.

5. Provision for parent education, both for secondary school and college youth and for parents. This should stress the whole range of parent-child relationships and family concerns.

6. Adequate programs of health and physical education. One of the powerful motives for a sane sex life can come through the appeal to the young person's concern for vigorous health.

7. Finally, there must be adequate social control of such sex-stimulating agencies as the motion picture, magazines, radio, advertising; and such commercial amusements as dance halls. The most serious efforts to provide constructive education will not be effective if the youngster is constantly subjected to demor-

alizing influences outside the home and the school. (See CHARACTER EDUCATION.)

G.E.H.

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SEX HYGIENE — See HYGIENE AND HEALTH EDUCATION; SEX EDUCATION.

SHELDON, EDWARD AUSTIN—See OSWEGO MOVEMENT.

SHOPWORK. As used by educators, *shopwork* usually refers to instructional work performed or given in school shops. Shop instruction may be general and prevocational in nature, as in industrial art shops, or it may be given on a vocational basis. Among the types of shopwork that are most commonly given on an industrial arts basis are woodwork, metal work, electrical work, and printing. The metal work is often general metal work. This means a combination of several kinds such as sheet metal work; pipe fitting, machine shop work and perhaps welding—forge, gas, or electric.

Vocational shop work varies more in type. In the all-day trade and industrial schools, machine shop practice, electrical work, auto mechanics, printing, carpentry and cabinet-making, and sheet metal working are very common. Some of the newer types of vocational shop work given in schools include aircraft repair, aircraft engine repair, air conditioning, battery service, Diesel engine repair, garment and needle trades skills, hotel training, instrument repair, linotype operation, lithography, marine engine mechanics, metallurgy, neon tube lighting, oil production and

refining, optical mechanics, police service, refrigeration, telephony, textile weaving, and many others.

In industry, the term *shopwork* is used for work performed in *production shops* or shops in which goods are produced; in *maintenance shops* or departments which concern themselves with up-keep such as painting, repairing and redecorating; and in *service shops* of various sorts, for example, radio, gas, or electrical service shops. (See INDUSTRIAL ARTS EDUCATION and VOCATIONAL EDUCATION.)

F.T.S.

SHORT COURSES. The term *short courses* has been used in both the industrial and professional fields to designate a type of course which attempts to give in abbreviated form a larger field of knowledge. The agricultural and homemaking colleges have generally made use of the short courses for both men and women. Such courses are usually offered at off-seasons and vary in length from one week to three or four months. The offering is in the way of refresher courses and those representing new materials and findings. In the trade and industrial world, short courses designed to give workers new skills, or to retrain them in new processes, form an important part of the trade training program.

Short courses also have been organized for professional workers. An example of this program is the continuing education center at the University of Minnesota. This center operates short courses, clinics, and conferences for doctors, lawyers, and other professional workers.

The heart of the cultural, economic, political, and social revival in Denmark was the Folk High School (*q.v.*), a short course program (five months for boys, three for girls). Such courses were operated during the winter months when young people from the rural communities could be spared from their home and farm duties.

The short course program is essentially an adult education technique. Its application in this country has been largely in technical fields, although there are beginnings in cultural fields.

W.H.B.

SHORTHAND, TEACHING OF — See SECRETARIAL EDUCATION.

SIBLING RIVALRY. A feeling of conflict between children of the same parents which usually expresses itself in jealousy. It frequently begins in a young child when the new baby receives attention which was formerly his. Comparing children in the same family and showing favoritism also provide experiences from which this struggle for supremacy begins. Sibling rivalry is an important factor in developing emotional maladjustment in children which may prove the source of subsequent behavior or conduct problems.

M.S.Q.

SICK LEAVE. The majority of absences among teachers is caused by personal illness. Considerable substitute-teacher service must be provided in practically every school because of teachers' illnesses and maladjustments, illness in family, death in family, and other causes.

Absence regulations should be flexible in order to meet varying conditions; they must be specifically stated and clearly defined; they should protect everyone concerned; they should be simple in their application; and they should provide for an adequate system of records.¹

The flat-rate plan, whereby a fixed amount is deducted for each absence, takes care of the large majority of absences. The most frequent number of days allowed is ten. The average teacher absence is between six and seven days each year. This amount of sick leave, however, is inadequate for the occasional extended leave on account of personal illness.

The cumulative-leave plan, whereby the sick-leave days which are not used accumulate year by year, has increased in popularity during recent years. In a few systems the accumulation may go on for as long as ten years, but most school systems that use the plan set the limit from two to five years. This plan offers the teacher protection against the hardships of an occasional extended illness, but many of the characteristics of the plan condemn it. It guarantees nothing to the school board, but everything to the teacher. It does not protect the teacher who is new to the system. In some cases it has proved more expensive than other systems. When sick leave can accumulate, teachers may teach when they are really too sick to teach effectively because

they wish to save their sick leave for a more serious illness that may come in the future.

Under the flat-rate, fixed amount deductible plan, a number of days are allowed each teacher for sick leave. A small amount is deducted from the teacher's salary for each day of absence. This plan lessens malingering at the expense of the community, but unless the deductions are relatively large the number of absences is not appreciably reduced.

In many school systems the substitute's salary is taken out of the absent teacher's salary. This plan has obvious objections.

Under mutual-benefit plans, teachers insure each other against salary loss during illness. Payments are usually less certain than they are under the mutual-benefit, group-insurance plan. Both plans have proved to be inadequate.

Reeder reports a plan whereby a bonus system gives the sum of \$50 to each teacher with a perfect attendance record. Each day of disability absence costs the teacher \$5 of this bonus until it is consumed. This system obviously has the same limitations as other plans by which the teacher is "docked" for illness.² (See LEAVE OF ABSENCE and SABBATICAL LEAVE.) D.H.C. and A.R.A. References.

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SIGNIFICANT DIFFERENCE. A difference, as that between mean scores for the experimental and control groups in an experimental investigation, is ordinarily said to be statistically significant if it is more than three times its standard error. A significant difference is one practically certain to represent a true difference greater than zero, apart from errors resulting from failure to obtain a random sampling. Thus, if an experiment to evaluate two methods of teaching stenography reveals a significant difference between the two methods, we are justified in concluding that the method which proved to be superior in this experiment would continue to be the superior method if the experiment were repeated with other similar groups.

The concept of a significant difference is often misunderstood by amateur statisticians

because the word *significant* has a statistical connotation that is overlooked. A difference may be statistically significant even when it is too small to have any real meaning to the educator. Thus, a new method of teaching stenography may be consistently superior to the traditional method—that is, the difference is statistically significant—but the superiority may be so small as not to justify adoption of the new method with all that may be involved in the purchase of new texts, the re-education of teachers, and the change in school organization.

While the statistical significance of a difference is an important factor in the evaluation of research results, administrators must also consider the practical significance of the difference when deciding what use should be made of these results. (See CRITICAL RATIO.) J.R.G.

SILENT READING — See READING, METHODS OF TEACHING.

SIMILIARITIES TEST—See OBJECTIVE TESTS AND EXAMINATIONS.

SIMPLIFIED SPELLING — See SPELLING, PHONETIC.

SINGLE-SALARY PLAN—See TEACHERS' SALARIES.

SINISTRALITY—See HANDEDNESS.

SIZE OF CLASS—See CLASS SIZE.

SKIPPING—See PROMOTION.

SLIDES—See AUDIO-VISUAL AIDS.

SLOW LEARNER. The term *slow learner* is now applied not to those who are slow to learn this or that specific skill or area of information but to those who have obtained scores on intelligence tests which are below average (i.e., below normal) but above the upper limit set for the definition of mental deficiency. Children who range from 70-90 I.Q., estimated to constitute more than 20 per cent of the school population, are the ones most usually included in the category of slow learners, though for such practical purposes as the organization of special classes, lower limit of 75 I.Q. and an upper limit of 85 I.Q. are often used.

The two words of the term "slow learner" indicate that within the scope of their capacities these children are able to learn, though

their rate of progress is slower than that of the average child. Moreover, the slowness relates to the learning of meanings built upon abstractions and symbols commonly referred to as intellectual. The school subjects in which the "slow learner" is retarded for his chronological age are those which involve a good deal of reading and reasoning, especially reasoning with words and numbers or other symbols. These same children may do very well in manual work, artistic appreciation, and social adjustment. When dealing with the slow learner, the teacher must be aware of both the child's abilities and his weaknesses. It is unwise to make the child spend so much time in trying to improve at those points where the prediction is that he will always be inadequate that he has no time to gain a relatively high degree of skill in those areas where such a result is possible for him. It is of importance to know the kinds of procedures that will reduce the difficulties that slow-learning children have with verbal material. Many educators still recommend drill as the main technique for teaching those of below average intelligence. It is true that drill will produce faster results than other methods when evaluation is in terms of short, verbal responses to isolated questions of fact. It is equally true that such memoriter drill later results in speedy forgetting, or, at best, in the accumulation of bits of verbal knowledge which the child cannot use to any practical purpose because they have so little meaning for him.

Fundamentally, the slow learner learns in the same way that other children learn. In the Speyer School experiment⁴ it was found that the slow classes (75-90 I.Q.) and the very bright classes (I.Q.'s of 130 and over) both gained tremendously when learning started from concrete meaningful experiences and when the children could examine and use all kinds of materials. The bright children of course learned much more than the slow from the same materials, but the slow did their best learning not when they were drilled but when they were helped to understand and to work things out for themselves as much as they were able. In other words, an experience curriculum for the slow learner suited to their purposes is as important as such a curriculum for the bright.

One of the great needs for teaching slow-

learning children is verbal material that is not too complex for their understanding yet not so childish in content that the children's resentment produces a negative attitude. Because of the lack of such material, children of I.Q.'s between 70 and 90 are frequently found to be retarded in reading much below what one would expect from their mental age. Remedial procedures which have been successful in these classes have been not those where drill and formal, logically-arranged reading exercises have been employed, but those in which the pupils have first been helped to enlarge their background of experiences upon which a meaningful reading vocabulary can be built and to gain an interest in reading. Interest in reading was developed through interesting books which were made easily available and which were sufficiently within the reading level of each child so that he experienced a measure of success, often the first such experience in the field of reading. Interest was also aroused through having the child encounter situations in which he felt a real need for improving his reading ability.

Slow children, because they come into more frequent contact with normal and bright children than do the mentally retarded and because they are more sensitive than the latter, are much more insecure, as a group, than the mentally deficient. Moreover, though parents may recognize and accept the fact of mental deficiency in a child because of its greater obviousness and abnormality, they are usually prone to tell the slow child that he "could do it if he wanted to". In these instances, the school must help the parents to see that such an admonishment will only increase the child's feeling of inferiority with a consequent loss rather than gain in learning, with anti-social behavior as another unfortunate concomitant result of such prodging. (See CLASSIFICATION OF STUDENTS, PROMOTION.) B.B.F. and W.A.K.

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SLOYD—See SWEDEN, EDUCATION IN.

SMITH-HUGHES ACT—See AGRICULTURAL EDUCATION; FEDERAL AID.

SMITH-LEVER ACT — See FEDERAL AID.

SOCIAL AGE (DEVELOPMENTAL AGE). The stage of the maturity of a child's total personality. The stage of the child's social development is determined by scales or tests based largely on his play interests and his ability to handle himself in situations involving his care of himself and his behavior with others. While physical size and mental age are somewhat related to the social maturity of the child, a child may be mentally bright and still act like a baby; he may be small in stature and yet in his actions be independent and socially mature. Children make friends more frequently among other children of about the same social or developmental age, rather than of the same mental or chronological age. M.S.Q.

SOCIAL CASE WORK — See CASE STUDY; SOCIAL SERVICE. ACTIVITIES IN SCHOOLS.

SOCIAL HYGIENE—See HYGIENE AND HEALTH EDUCATION.

SOCIAL INTELLIGENCE. Without social intelligence man cannot live effectively today. Without it he cannot distinguish those who exploit him — employer, congressman, salesman—from those who do not; he is unaware of alternatives to his way of living; he cannot remedy grievances because he doesn't know how to manipulate events to secure what he wants; he cannot make up his own mind reliably, yet he does not know when others make it up for him. He cannot, in short, make choices which serve his interests. Living without social intelligence is, moreover, quite incompatible with democracy, where each individual is expected to participate in management of the common social life and himself to enjoy as rich a life as possible.

What constitutes social intelligence? Though there will necessarily be differences in de-

gree from person to person, nevertheless certain elements can be differentiated. The first is knowledge of the world today: awareness of current happenings, but more—understanding of the problems and issues involved, of their historical roots, and of the deeper movements of which the events are manifestations. Thus, in a significant dispute regarding wages for labor, the merely informed will know of the event, but the socially intelligent will know also that this single happening is imbedded in a cluster of problems and issues regarding distribution of wealth and will understand the deeper trends and movements (technological developments, trends to democracy) which constitute the real basis of the problem.

A second element is ability to form discriminated opinions. This involves ability to get information, to read, discuss, exchange ideas, and, in particular, ability and disposition to examine evidence, to see below the surface, to evaluate critically. With these skills one can utilize the ideas of others in forming his own opinions. Without them he is at the mercy of any who wish to mold his mind, to exploit him. Without them he cannot read a newspaper intelligently, possibly not even with safety. He will swallow what he hears; he will follow the party line. Facts, information, knowledge, of a sort, even the mentally enslaved citizens of a dictatorship have; discrimination, however, they do not display. The ability to form discriminated opinions seems one of the clearest evidences of democratic social intelligence.

But intelligence which is mere *knowing about* life today is insufficient. The citizen who merely observes and understands is impotent. A third necessary element, then, is ability to act, to shape the course of events. Certain events one can, if he is skillful, maneuver by himself. But for most outcomes in modern life group endeavor is necessary. Though one may individually recognize dishonest officials, it is only by cooperation with others that honorable ones can be elected instead. One must, then, know how to work with others, to enlist their interest and cooperation. He must know groups to approach or how to form them. He must be skillful in working with groups to find channels of action. Is such ability to effect essential to social intelligence? The answer will depend on

SOCIAL PLANNING — SOCIAL SERVICE ACTIVITIES

what we wish intelligence to eventuate in. It appears increasingly that a spectator type of social intelligence does not suffice.

M.Y.O.

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SOCIAL PLANNING—See SOCIAL STUDIES, TEACHING OF.

SOCIAL REALISM—See REALISM.

SOCIAL SCIENCE RESEARCH COUNCIL—See COUNCILS OF LEARNED AND PROFESSIONAL SOCIETIES.

SOCIAL SCIENCES—See SOCIAL STUDIES, TEACHING OF.

SOCIAL SERVICE ACTIVITIES IN SCHOOLS. Social services in schools cover a wide range of activities set up in various ways and in varying degrees of completeness in different school systems, but all based on two generally accepted underlying principles. The first of these is the realization that a child is an organism which functions as a whole so that his mind cannot be separated and educated without reference to the other aspects of his total existence. The second principle is the conviction that each child is a unique individual differing in many ways from every other child, not only in physical development but also in mental ability, social experiences and attitudes.

As these two principles have forced themselves upon the attention of educators, and as other fields of knowledge—psychology, social case work, mental hygiene, and pediatrics—have developed, the schools have gradually assumed responsibility for adjusting their programs and routines, and for introducing new services to meet the needs of the total individual child. In doing this it has been found necessary to examine carefully each activity in order for the schools to avoid assuming functions and responsibilities which properly belong in other fields. For instance, the schools must assume responsibility for guarding the health of the children under their care, but they must avoid taking over the functions of community clinics or depart-

ments of public health. Also they must provide a case work service, through an attendance department or a visiting teacher department, or both, for handling individual problems of adjustment, but they must avoid administering relief as that service properly belongs in a department of public welfare. On the other hand, the services which are set up must be designed not only to work with individual children, but also to work co-operatively with such other agencies in the community as health agencies, recreational agencies, so that the services of those agencies can be brought to bear as effectively as possible upon the problems of maladjustment which appear in the schools. It is a further responsibility of all types of social services in schools to become aware of lacks in community resources as they appear through the unmet needs of individual children, and to help stimulate the proper agencies or institutions to develop the needed resources or services.

In some school systems, all types of social services are set up in one department or division under a single Assistant Superintendent or Director. In other systems, certain services are connected with one department and others with other departments. Some of the most usual types of social services found in most modern school systems today are the following:

The School Nurse. The school nurse is a graduate nurse who is further equipped with public health training. She functions not only as an assistant to the medical inspector in maintaining healthful living conditions in the school buildings and grounds, and in administering periodic health examinations to all school children, but also as a guide to individual children and parents by interpreting the importance of defects found through the health examinations and by aiding them in working out ways of having those defects corrected, either through their private physicians or through the use of community clinics. She understands the importance of working with individual children and parents in terms of their own family problems and understanding or acceptance of medical findings, rather than assuming that all parents react similarly.

School Attendance Workers. All states in the Union now have Compulsory Attend-

SOCIAL SERVICE ACTIVITIES IN SCHOOLS

ance Laws of some kind, but they vary greatly in the provisions of the laws and in enforcement machinery which has been set up by the different states. (See COMPULSORY ATTENDANCE.)

The trend is definitely away from the original concept of a "truant officer" whose function was simply to act as a police officer to patrol the streets and see that all children were in school, or at least off the streets during school hours. More and more school systems are recognizing irregular school attendance and truancy as evidence of social, educational, or emotional maladjustment. They are, therefore, seeing attendance work not primarily as a police function, but rather as a social service based on an ability to analyze the causes lying behind the symptoms of irregular attendance or truancy (*q.v.*) For this reason, some school systems have already set up educational standards for attendance workers and are insisting that these workers be trained in social case work so that they may deal with individual problems and be able to work cooperatively with other social agencies in the community on conditions causing truancy and later delinquency.

Visiting Teachers. "Visiting Teacher" was the original title used when the first school social workers were introduced into school systems in 1906-07. That title was changed by the national professional association in 1941 when the name of the association was officially changed from the *American Association of Visiting Teachers* to the *American Association of School Social Workers*.

The recognition of the need for this service grew out of the realization on the part of school people, settlement house workers, psychiatrists, and others in the community dealing with children's problems that many children were showing school maladjustments because of conditions lying outside the actual classroom situation.

As unfolding knowledge in the fields of mental hygiene, psychology, social work, and education itself began to throw more and more light on the sorts of difficulties which might cause problems in the smooth development of each child's personality and school progress, it became increasingly apparent that the classroom teacher and the school principal, alone, could not be expected to understand the causes of these problems, and to

develop the case work techniques necessary to work with individual parents and other community social agencies and institutions in eliminating them. The social worker, attached to the school system itself, with a knowledge of school conditions and techniques, but also equipped with case work skills, was seen as the technician who could best help school systems and community social agencies to coordinate their services for the benefit of individual children. In very many cases, the school social worker could help schools and homes to understand each other better and thereby enable them to work together to provide a more wholesome atmosphere for the child's developing personality and social and emotional adjustment.

There are as yet comparatively few visiting teachers, or school social workers, in the United States, but the need for them is gradually being accepted and their appointment in school systems is beginning to be looked upon by school administrators and laymen, not as added "frills," but rather as a necessary step in economizing energy and making education effective for as many children as possible.

Special Education for Exceptional Children. From the work of the school nurse, the trained attendance worker and the school social worker, as well as from the fields of pediatrics and individual psychology, there has come to the schools an appreciation of the need of certain groups of exceptional children for specialized education. We find in school systems now special classes for the slow learning child, the child with visual or hearing difficulties, the crippled child, and the child with speech difficulties, as well as teachers who visit the home of those children whose chronic illness precludes their attendance at school. Some school systems even recognize the exceptionally bright child as needing special class placement. (See EXCEPTIONAL CHILDREN, HANDICAPPED CHILDREN, SPECIAL CLASS.)

These special classes for exceptional children are mentioned under the heading of "Social Services" because the adjustment of the child and his parents to his placement in a special group, the interpretation to the parents and the children of the work in the special class, and the vocational and personal guidance connected with the work of these

SOCIAL STUDIES IN THE SCHOOLS, COMMISSION ON

classes all require the services of someone trained in case work techniques, if the classes are to function successfully. In many school systems which maintain a special class program, visiting teachers are attached to the department of special education for this purpose.

Other Social Services In Schools.

Various other sorts of social services are found in various forms in some school systems. Free lunches for indigent or undernourished children are now provided in many school systems through the participation of the federal government and the use of excess commodities. Parent teacher associations in some schools provide funds for clothes and shoes for needy children in the school population. In some communities, High School Scholarship Associations have been set up to provide carfare and lunch money for children showing ability to continue their education but lacking money for these minimum essentials. These are usually financed by private contributions.

C.J.

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SOCIAL STUDIES IN THE SCHOOLS, COMMISSION ON THE (American Historical Association). The Commission on the Social Studies in the Schools was organized as the result of a growing awareness of the fundamental problems created by the rapid industrialization of American society. The general public, social scientists, and educators, recognized the existing discrepancies between the prevailing conception of policy and program in the social studies and the educational needs of a dynamic, expanding society. In 1925 the American Historical Association accepted a request

the resources of social science and educational research upon the problem of educating youth for participation in, and direction of, a new age. The Commonwealth Fund provided money for planning, and a directing board was organized which included economists, sociologists, geographers, educational research workers and educational administrators, as well as historians. Beginning in January, 1929, the Commission carried out a five-year program of investigation financed by grants of the Carnegie Foundation totalling \$340,000.

While purely technical and professional study of the teaching of the social sciences was a part of the inquiry, the Commission took a broad conception of its work and directed its attention to considerations of national history and policy and its world setting, interrelationships of school and society, conflicts and pressures in economic and social life; and to the "meanings, purposes, and potentialities" of American democracy, in order to orient educational philosophy and purpose. The Commission secured the service of technical experts to study and report upon detailed aspects of the investigation.

The findings of the Commission were summarized in *Conclusions and Recommendations of the Commission*, which appeared in 1934. The majority of its members believed that individualism, with its concomitants of capitalism and class distinction, is engaged in a struggle with a social and collectivistic society of planned economy and mass rights. Although the present era is primarily one of adjustment and transition, current trends indicated that the latter social organization would dominate the future. Thus a broad plan was needed which would enable education to meet the demands of an emerging collectivism, while securing the individual from bureaucratic tyranny.

To implement this frame of reference the Commission proposed that "the attitudes and outlook of the American people, especially the rising generation, be 'profoundly' altered to frank recognition of the new order, but through education in democratic ideals and practice, not through coercion or regimentation. In selecting and organizing curricular materials, continuation in school through adolescence with opportunity for

SOCIAL STUDIES, TEACHING OF

despite economic insecurity. Equal opportunity for the development of creativity, spirituality, and individuality was to be fostered by participation in social projects in the elementary schools, and by emphasis in the secondary schools upon broad courses in the social studies with more attention given to literature and to the methods and instruments of scientific inquiry.

The Commission placed its faith in "the competence and spiritual power of the individual teacher", but recognized the necessity for improved conditions and rewards of work, and a new direction in teacher training. Teachers must be freed from the rigid, detailed supervision which prevented freedom in teaching realistic and independent understanding of social pressures and issues. Thorough grounding in socially useful knowledge rather than the mastery of techniques and formulæ characterized the education of teachers. In the education of administrators, emphasis was placed upon "social sciences, social philosophy, and statecraft". Finally, the Commission recommended that teachers aspire to positions of leadership and influence, and that educators become more effectively organized so that education might defend itself against the attacks of "selfish minorities and ignorant majorities".

The *Conclusions and Recommendations* aroused a great deal of controversy principally because of their collectivistic emphasis, active partisanship, and failure to provide specific materials and methods. Four of the Commission's sixteen members refused to sign the report. It is too early to assess the final significance of the frame of reference presented by the Commission on the Social Studies in the Schools. However, the broad scope of their investigations provides a new perspective on American education. The sixteen technical studies, most of which appeared after the publication of the *Conclusions and Recommendations*, answer the demand for greater detail and deal with hitherto neglected aspects of the interplay of educational and other social forces. (See SOCIAL STUDIES, TEACHING OF.) K.R.H.

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SOCIAL STUDIES, TEACHING OF.

Definition. A clear understanding of the place of the social studies in the instructional program of the schools necessitates a grasp of the significant differences between the *social sciences* and the *social studies*. The social sciences are organized bodies of knowledge built up from the formal, scholarly, and advanced studies which deal with various aspects of human cooperation and conflict. They constitute the systematized record and thought about human experience and knowledge concerning man's interrelationships. They promote the broad social purpose of providing a perspective within which human relationships may be described, classified, and explained so that man may bring this knowledge to bear on the solution of present problems.

The social sciences include several major fields. 1. *Cultural anthropology* is the study of the customs, folklore, social activities, and organizations resulting from man's reaction to his environment, especially in the origins of social behavior. 2. *Economics* deals with the material aspects of satisfying human desires. This may be an historical approach or a quantitative study of current practices. 3. *Geography (q.v.)* may be both a natural science (physical geography) and a social science (human geography). The concern of the latter study is to describe and explain man's environment, both natural and cultural. 4. *History* is the oldest of the social sciences and is the parent trunk from which all the others have stemmed. In its restricted scope it is the study of man's experience organized in chronological sequence. 5. *Political science* covers the field of organized control of human society by means of government. It is concerned with all forms of such control as developed in the past, but main emphasis has been devoted to the forms and functions of the national states and their subdivisions. 6. *Social psychology* is the study of the impact and the resultant reactions of events and in-

stitutions upon the human mind. 7. *Sociology* is the study of the forms, institutions, and functions of human groups.

The social studies consist of portions of the social sciences selected, simplified, and adapted for the purpose of instruction in the schools. The difference between the two is in their purpose and degree of difficulty rather than in the nature of their content. Both deal with human relationships, but the social studies are simplified and presented so as to provide introductory stages of increasing complexity on the road to the social sciences. Both have social utility as their ultimate purpose, but the immediate concern of the social studies is instructional utility. The frame of reference conditioning all instruction in the social studies, as proposed by Beard (*A Charter for the Social Sciences*, Scribners, 1932, p. 2), consists of the spirit and letter of scholarship, the social realities of our times, and the nature of the teaching and learning process in the various grade levels across which it is distributed. A monograph on "A New Interpretation of the Articles of Confederation" would belong in the field of the social sciences, but presented as "A Unit on How the American Colonies Devised Their Own Form of Government" it would belong rather in the social studies since by its title it is obviously designed for instructional purposes. Completely different terms would make the distinction self-evident, as is the case with "political science" and "civics." One may belabor the distinction too much, but a practical distinction can and should be made for the purpose of clarifying and facilitating educational discussion.

There is no definite distinction between the social studies offered in the elementary school and those offered in the secondary school. The elementary programs are much more simplified, are more integrated with other studies on the same grade level, and have the understanding of more immediate and specific human relations as their primary object. They usually begin with a consideration of the home, the family, the school, and the community and develop into a more systematized study of geography, local and national history, and civics in the intermediate grades. The secondary school covers these fields in greater depth and detail and adds more specialized treatment of sociology, economics,

and government. According to Wcsley (*Teaching the Social Studies*, p. 50), the most frequent offering in the social studies in the upper four years of the secondary school are: Grade IX: world history, commercial geography, civics; Grade X: history of world civilization; Grade XI: American history, state history, government, economics, problems; Grade XII: problems, sociology, economics, government.

Status of the social studies in the schools. Three major elements are combined to form the social studies, namely information, skills, and social practices. Information about human relationships may be drawn from books, newspapers, pamphlets, pictures, models, specimens, maps, charts, etc. This information is for the most part outside the orbit of immediate experience of the pupils and provides data in organized form about human relationships which are considered essential to an understanding of the form and functioning of society. It may vary from a study of the customs of the ancient Egyptians to a consideration of the pattern of dictatorship in the modern world.

The second major element consists of certain skills and processes. The memorization of many details of factual information may be a sterile accomplishment in terms of promoting the ability to think critically and constructively about human relationships. Since part of the ultimate purpose of the instruction is to develop individuals who can assume a responsible place in society, they must be afforded some practice in attacking social problems under expert direction. To attain this particular end, emphasis is placed upon developing ability to discover and analyze a problem, gather and evaluate the data necessary to propose a solution, and if possible to test that solution. Past problems of society afford excellent material for pupils to practice upon. These frequently have the advantage of having had some ultimate solution worked out so that the pupils may compare their own with society's solution, and also of being sufficiently removed in time and space so that they may be considered objectively and not be obscured by the heat of current controversy. A healthy critical attitude and less possibility of overconfidence will result if pupils are also occasionally directed into a study of current problems for

which no practicable solution has yet been found and which they will have to face as coming citizens.

The third major element consists of a number of peripheral aspects which combine actual pupil experience with guided learning about human relationships. These areas, which may be studied formally or incidentally, largely comprise elements recently added to the life of the school. Since they do deal with social relationships and have a very definite social purpose, they are more logically, though not always necessarily, considered as a part of the social studies offering. Examples are programs dealing with vocational guidance, community survey or service, regional geography, school citizenship, extra-curricular activities, sex information, and social behavior.

Values claimed for the social studies as school subjects have naturally reflected changing social philosophy. Traditional aims stressed moral and ethical values; more recent emphases have been on developing knowledge, understandings, skills, attitudes, and interests which will equip young people to take their proper rôle in a democratic and interdependent society. Recognition of the desirability of this preparation is evidenced by the fact that in time allotment the social studies now occupy a place second only to English as a school offering.

Problems in adapting materials for instruction. Before the social sciences can be transformed into the social studies, they must be adapted to meet the requirements of the organization of the school. Although this process of adaptation is not carried on in separate and distinct steps, a clearer understanding of the principles involved will be possible if the three major problems of selection, organization, and grading of materials are considered separately.

Selection: The existence of a practically unlimited amount of material makes the adoption of some principle of selection necessary. Many specific principles have been proposed which tend to cluster around three major ideas. 1. The needs and activities of good citizens may be determined by a survey of social practice. Objections to this are that it is a cumbersome method and one which also rests finally on current opinion. 2. A program may be built up around pupil needs and in-

terests. This point of view, although limited in too naive an application, has contributed to more vitalized instruction and has shifted emphasis away from undue attention to subject content. 3. Prevailing educational practice or frequency of mention in publications may provide a useful guide in the selection of materials. This principle, however, is open to the criticism that it assumes current practice is satisfactory; it may also result in setting up a program of study too inflexible in relation to changing conditions and the local environment.

Organization: Materials must be organized to meet the difficult requirements of provision for individual differences, and adjustments necessary to horizontal and vertical integration. Variations in organization have ranged all the way from straight subject matter to complete integration or fusion (*q.q.v.*), where the identity of the individual subjects is completely submerged. Prevailing practice favors a modified subject matter approach as more advantageous for the purpose of learning, with many of the benefits of integration obtained through correlations among units, problems, and projects. This type of approach has evolved towards a unity of concept not possible when completely separate subjects were offered.

Grading: Determining the most appropriate grade level on which to offer materials is not easy because the social studies seem to have no clearly discernible order of difficulty. In addition, pupils bring many preconceived ideas to the classroom and the influences of a bewildering mass of outside agencies such as newspapers, radio, and motion pictures prevent the teacher from controlling more than a fraction of the social learning of his pupils. Abstract and generalized materials are gradually added as the child advances up the educational ladder. Krey has classified the steps of sequential social learning as follows (Kelley, T. R., and Krey, A. C. *Tests and Measurements in the Social Sciences*, Scribners, 1934, p. 13): (1) places, concrete objects, and persons; (2) events; (3) simple relationships of time and place; (4) relationships to material world; (5) relationships among people; (6) concepts denoting intricate social relationships. The lack of any universally applicable principle of grading has resulted in

great diversity in practice. (See GRADE PLACEMENT, CURRICULUM.)

The selection, organization, and grading of materials for social studies instruction will doubtless lead to continual adaptation and diversification, because the changing standards of what is considered important by society will require constant adaptation of the curriculum.

Trends in Social Studies Teaching. Various aspects of the social studies program are interwoven into a pattern involving content and curricular organization as well as methods, so that these may be considered together under the following headings:

1. *Deformalizing of teaching and more vital motivation of pupils' work:* In common with other subjects, teaching in the social studies has adapted its methodology to consider the child's learning rather than the subject content as a focal point. This has directed emphasis to the elements of the pupils' own social experience which may be advantageously drawn upon to furnish part of the instructional program. The modern teacher uses a flexible classroom approach and motivates a cultivated interest in the regular content material through the channels of the natural interests and activities of children.

2. *Enrichment of methods by use of many aids to instruction:* The availability of many supplementary materials has permitted teachers to break away from the single text book. School libraries contain many books for reference and collateral reading for all levels of ability. Most communities large enough to support a high school have a newspaper of some kind; many classrooms and practically all homes have radio sets; pupils of all ages who are within accessible distance attend the motion pictures. Much of the material from these sources is concerned with human relationships and may therefore be used directly. There are in addition many other readily available instructional aids in the form of maps, charts, graphs, specimens, models, government bulletins, pictures, etc. (See AUDIO-VISUAL AIDS, MOTION PICTURES IN EDUCATION, RADIO IN EDUCATION.)

3. *Use of activities to provide experiential learning:* In his widely quoted precept "We learn by doing," John Dewey (*q.v.*) voiced not only a psychological truth but also a criticism of much that was traditional in

classroom procedure. The introduction of activities related to socially significant learning has done much to improve instructional methods. Activities in the social studies range from the concrete ones in the elementary school, such as construction of a straw hut for "tribal meetings," to the more intellectual type in the secondary school, such as visiting the city council or the local bank to observe the practical operation of principles previously studied and discussed. Activities must be expertly guided to insure the realization of significant learning outcomes and the avoidance of waste of time and effort.

4. *Emphasis on the more permanent elements of learning:* Major attention in the traditional social studies program has been on having pupils learn a large volume of factual information on the assumption that other outcomes would automatically be realized. Numerous follow-up studies revealed the disturbing certainty that other objectives frequently were not attained and also that the great majority of the separate facts were forgotten within a relatively short time. Methods are therefore being modified to take into account more permanent outcomes such as critical analysis of a problem, locating and evaluating sources of information, drawing inferences, and making generalizations. These are not taught separately but are developed through directed study and classroom discussion as a part of the total process of social learning, and involve actual practice as a guarantee of more permanent retention. The National Council for the Social Studies has devoted an entire Yearbook to "critical thinking." (See CRITICAL ATTITUDE.) Development of skills and relevant thought processes has been aided by the development of diagnostic tests designed to detect the deficiencies of pupils and to stimulate them towards improvement. (For examples see item under Morse and McCune in bibliography below.)

5. *Introduction of new topics:* The range of offering has been broadened by the addition of new content materials and greater variations in courses. Some addition comes from an increase in the availability of reference materials, outside aids to instruction, community contacts, etc. A large part comes from public interest in new or neglected topics. War, for instance, stimulates interest

in a number of new subjects. Some of these are the Far East, Latin America, airplane transportation, global geography, civilian economy, world organizations—past and present, organization and function of the branches of military service, and problems of post-war planning and reconstruction. Widespread public interest has also resulted in the introduction of courses in consumer education (*q.v.*) in many schools. Arguments for the inclusion of this topic in social studies' curricula are that it would improve management of individual affairs, would provide an understanding and therefore a better functioning of free private enterprise, and would provide the basis for a more intelligent application of social planning and management.

6. *Increased attention to contemporary aspects:* A frequently justified complaint against the traditional social studies program was that it lacked reality in being completely divorced from the contemporary scene. Some adjustment has been made in providing actual courses centered around community and national problems, where emphasis is on the present, and in adopting "current events" as a supplement to the social studies program throughout all grade levels. There is no complete agreement as to how current events may best be used. Viewpoints vary all the way from proposing a purely incidental correlation with the regular subject matter of the course to a systematic study based on assigned reading in papers and periodicals. The teacher using current events extensively should endeavor to select them with care so that the socially significant aspects are stressed rather than the trivial and sensational, and relate them wherever possible to the regular course content so that the whole will combine to provide a fuller understanding of the contemporary world. Too much stress on current events unsupported by some historical perspective may yield only a shallow and distorted impression of the present.

7. *Community study and regional consciousness:* Emphasis on contemporary aspects of society has directed attention also to using the community as a laboratory for the social studies. Field trips, school journeys, and local surveys have been utilized to provide pupils with direct experience. There are innumerable comparisons, contrasts, and illustrations of social phenomena within the

local scene which the alert and informed teacher can draw upon to make the study of abstract principles or remote times meaningful. But, as for example in using current news, one must be careful to select the socially significant elements for emphasis. Howard Wilson points out a prevalent misuse of this approach (N.C.S.S. *Fourteenth Yearbook, Critical Thinking*, 1942, p. 120): "As one reads through the rapidly growing literature on the use of school and community in civic education, he is impressed with the fact that we have commonly been intent simply on using school and community as a new body of subject matter, and have focussed attention on the acquisition of information rather than on the process of thinking and acting in that area as much as we have in the areas with which school books deal."

The customary stress on political boundaries has also obscured the fact that more significant geographical features often bind states and parts of states into economic, commercial, and cultural regions. Some social studies programs have been evolved which utilize these regional characteristics and resources. Gearing the instructional program to the region provides a unified, logical approach; draws on the direct experiences of the pupils; and provides a consciousness of regional problems as a basis for subsequent participation as adults. (For example of a social studies program of this type, see item in bibliography below under Krey.)

8. *Awareness of the personal aspects of method:* The availability of many instructional aids and the increasing flexibility possible in the schools of today have freed the teacher from the necessity of following rigidly any one method, such as question-and-answer, or the steps of the various unit-mastery techniques. The personality, experience, and training of the teacher are so much a part of any approach he may use that a method successfully used by one teacher may be sterile or ineffective if copied by another. The best methods for a teacher to use are those which he finds on the basis of experience are most effective in promoting meaningful learning in an atmosphere of mutual respect and harmonious relationship.

9. *Wide experimentation with local courses of study:* Dissatisfaction with the traditional program has brought about a break from

ready-made programs and courses of study. Increasing emphasis on community and regional aspects and awareness of the importance of contemporary developments have combined to launch wide experimentation which has led to great diversity, sometimes mistaken for disorderly confusion by those who do not understand the reasons behind it. As long as this experimentation is undertaken intelligently and with real purpose, the resultant diversity may be regarded as a sign of vigor and growth.

10. *Acceptance of idea of social planning:* The rapid exhaustion of our natural resources plus the spectacle of privation in a land of plenty have turned the attention of thoughtful leaders in all fields to a consideration of greater economy of natural and human resources through intelligent planning. Some management of the national economy in the interests of a majority of the people is not incompatible with individual freedom nor free enterprise. Careful programs for conservation of soil, reforestation, etc., have already won wide popular approval and support. Social insurance is a promising beginning towards a condition of freedom from want for all the people. It is particularly within the realm of the social scientist to diagnose social ills and foresee social trends. A well managed program for teaching the significance and benefits of social planning can be instrumental in securing wide acceptance of the concept, and can therefore be one of the most important elements of instruction in the social studies. H.T.M. and E.B.W.

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SOCIAL WORK IN SCHOOLS — See SOCIAL SERVICE ACTIVITIES IN SCHOOLS.

SOCIALIZED PROCEDURE. The *socialized recitation* is one in which classroom activities are viewed as cooperative enterprises, with pupils and teacher working together to achieve ends that are acceptable to all its members.

The socialized recitation is an outgrowth of Dewey's philosophy with its emphasis on education as primarily a social process which should take place in social situations approximating life situations. To be sure, the socialized recitation should help pupils to acquire desired subject matter abilities, understandings, and facts, but it should also help the pupils to develop the abilities and attitudes that are important in making personal adjustments in social situations. The socialized procedure includes experiences that foster favorable attitudes toward cooperation, respect for the rights of others, dependability, and other desirable personal and social traits. Through participation in group activities, pupils learn how to work with others, both as leaders and as members of the group. Socialized procedures, if wisely guided and supervised, give the child a better understanding of the nature and importance of group relationships and individual responsibilities than can be attained in any other way.

Though the spirit and the purpose of the socialized procedure may be expressed in many forms, there are two major types. In the first, the formal type, the class is organized in imitation of some adult group or social institution, such as a club, a court, or a city council. After effecting the organization, pupils carry out the work of such an organization in order to understand its functions. Thus the members of a class organized as a court to try students who have violated school regulations gain insight into the ways our courts safeguard the rights of both the individual and society.

SOCIALIZED PROCEDURE

The second type of socialized procedure is much more informal, stressing the spirit of socialized procedure rather than its form. What distinguishes this informal type of socialized procedure from traditional classroom practices is that the socialized procedures stress the importance of social needs and not the teacher's demands as determining the nature of pupil activities. In both the traditional classroom and the socialized classroom a student may read to the group the letter he has written, and the other students will criticize that letter. In the traditional classroom, both the child who reads the letter and the students who make the comments are interested primarily in the way the teacher will grade their efforts. In the socialized recitation, however, both the reading and the criticism arise from social rather than teacher-imposed reasons. The child reads his letter because he wants to improve it by getting his classmates' reactions, and his classmates criticize the letter because they want to help him improve it. What grades the teacher will assign, or even whether the teacher will grade their efforts at all, is of minor importance.

Where the meaning of the socialized recitation is not understood fully, teachers tend to imitate the organization of a socialized recitation rather than to exemplify its spirit. Even though the students' seats are arranged in a circle rather than in rows, with the teacher seated as one of the group rather than standing at the front of the room, the ensuing discussion may nevertheless be dominated so completely by the teacher that the change in the plan of seating becomes meaningless. A student chairman leading the discussion according to a detailed plan prepared in advance by the teacher represents only a change in the person who asks the questions rather than a fundamental shift in the center of attention from the teacher to the students. Any type of pupil activity may be used in a socialized recitation if it contributes effectively to the attainment of the desired outcomes. The purpose is to secure wholehearted, purposeful, worthwhile participation on the part of the pupils. In practice these activities may vary from the rather limited recitation-discussion type under teacher leadership to situations in which the pupils are given the responsibility for planning and conducting all the activities of the period.

The values of socialized procedures depend much upon the teacher's insight and tact in guiding the selection, organization, and direction of activities. Desirable as pupil participation is, there is little value in purposeless and uncontrolled pupil activities. In planning such work the teacher should keep in mind some of the more important limitations of the socialized procedure. (1) Some objectives of education can be attained more effectively through direct teaching than through socialized activities, for instance, the acquisition of such skills as the use of fundamental arithmetic operations or the correct use of the preterit in a foreign language. On the other hand, a discussion of the various interpretations of a poem the students have read is well-adapted to a socialized procedure. (2) The socialization of activities cannot go beyond the pupils' willingness and ability to carry on the activities. Sustained group interest is essential to a successful socialized activity. If this is not present, perhaps because of difficulties beyond the pupil's depth or of subject matter that seems meaningless to the students, the activity may bog down into a meaningless, tiresome chore. (3) The real objectives may be lost sight of if the pupils become absorbed in the activities for the sake of the activities. As indicated above, some devices may become mere matters of form instead of vital learning activities. (4) If some pupils are not inclined to accept the class activities seriously, discipline problems are likely to arise. The high schools now have many older students who attend school because of the upward extension of the compulsory school age and not because they know they are profiting from their experiences at school. Such students as these, who regard classwork only as an unnecessary obstacle to their being free to go to work, may demoralize the entire group and use the apparent freedom of the socialized procedure as an invitation to horseplay. T.M.R.

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SOCIALIZED RECITATION—See **SOCIALIZED PROCEDURE**.

SOCIETY OF FELLOWS, HARVARD UNIVERSITY. The Society of Fellows, founded in 1933 by President Emeritus A. Lawrence Lowell, seeks to furnish the means to a number of carefully chosen graduate students of attaining a high standard of intellectual achievement free from pressure of routine tests and demands for immediate achievement, as well as from strain imposed by financial considerations. Candidates for Junior Fellowships are interviewed each year at Harvard by the Senior Fellows—the managing body of the Society, consisting of the President of the University and the Dean of the Faculty of Arts and Sciences, *ex-officio*, a Chairman, and at present five other men appointed by the Corporation. Since the total number of Junior Fellows may not exceed twenty-four, approximately eight are selected each year from among the candidates.

The Junior Fellows are elected for a term of three years, with the possibility at the end of the first term of re-election for an additional three years. During the first term they receive a yearly stipend of \$1,250 and during the second, of \$1,500, together with room and meals in one of the Harvard Houses. Married Junior Fellows receive \$750 in commutation for room and board. Junior Fellows have all the privileges of any instruction given in the University, but receive no credit for courses and are not candidates for any degree. The facilities of the University are at their disposal and they are permitted to pursue their chosen fields of educational activity, the attendant expenses being paid by the Society. At the end of a first-term appointment a Junior Fellow who still gives a strong indication of scholastic promises of a fundamental nature may, on the recommendation of the Senior Fellows, be reappointed by the Corporation for a second term not exceeding three years. Such a reappointment is not treated as normal.

During his membership in the Society the Junior Fellow meets formally and informally with the Senior Fellows, with other Junior Fellows, and with guests, young and old, who represent various areas of thought and action. By this means President Lowell hoped to transcend the limitations imposed by the doc-

torate by enabling the Junior Fellow to look beyond his own specialty and to see something of the range of knowledge as a whole and something of the seriousness and value of disciplines remote from his own. A.D.N.

SOCRATIC METHOD. The aim of the Socratic method was to bring the pupil to the point where he would be able to realize his ignorance and thus acquire the attitude of the true learner. As developed by Socrates, this conversation or quiz method, sometimes called the “dialectic” method, has two stages: (1) the “ironic” or destructive phase in which, by skillful questioning, the pupil is brought from unconscious ignorance to conscious ignorance; (2) the “maieutic” or constructive phase in which, by further questioning, the pupil is led from conscious ignorance to clear and rational truth. Socrates called the teacher the “gadfly of thought” and the “intellectual midwife,” claiming that the teacher’s function is merely to create in the pupil the spirit of the learner and to stimulate his mental activity by suggestions and guidance.

Although the Socratic method is used in modern education, there is always the grave danger that it is easier for the teacher to employ the ironic part of the Socratic quiz than the constructive phase. Indeed many teachers lack the ability to use a series of questions as a method of developing an understanding of a major concept, especially under classroom conditions. There is also the danger that the teacher, in his zeal to break down unconscious ignorance, may employ sarcasm to an unwholesome extent. The Socratic method can be very effective in overcoming common misconceptions and prejudices, provided that it leads, as Socrates would have it, to the consciousness of truth and not merely to the consciousness of ignorance. (See **QUESTIONS AND QUESTIONING**.)

E.H.W.

SORORITIES, PROFESSIONAL—See **FRATERNITIES, PROFESSIONAL**.

SOUTHERN EDUCATION FOUNDATION—See **FOUNDATIONS, PHILANTHROPIC**.

SOVIET EDUCATION—See **UNION OF SOCIALIST SOVIET REPUBLICS, EDUCATION IN**.

SPANISH, TEACHING OF—See MODERN FOREIGN LANGUAGES, TEACHING OF.

SPASTIC SPEECH—See SPEECH CORRECTION.

SPEARMAN - BROWN PROPHECY FORMULA. The Spearman-Brown formula is used in order to determine the equation which, given the reliability coefficient of a test of unit length, yields an estimate of the reliability of the same test when made A times as long, where A may be greater or less than 1. The equation reads

$$r_{AA} = \frac{Ar_{II}}{1 + (A-1)r_{II}},$$

in which r_{II} is the reliability coefficient of a test of unitary length and r_{AA} is the estimated reliability of a test A times as long. The general principle is that the longer a test of the same kind of material, the more reliable it is, but not in linear relation with length, for a law of diminishing returns is involved. The point should be stressed that lengthening a test will increase reliability in line with this equation only if the added material is genuinely homogeneous with that already in the test. The equation is found empirically to hold not only for test scores but also for increasing the number of judgments as in the use of rating scales and even in connection with increasing the number of categories of judgment, up to 5 or 7. The equation can be used in reverse, or, solving for A , we can estimate how much the length of a test should be changed in order to attain some specified reliability coefficient. (See RELIABILITY.) J.P.G.

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SPECIAL ABILITIES. The concept of special abilities implies an unevenness of ability somewhat in contradiction to the theory of general intelligence. As a matter of fact, little truth has been found either in the belief that "all good things go together" or in the converse that "nature" provides those who are defective in one direction with a special compensatory talent. Correlations of "good" traits have always been found to be positive, but in many cases very low or close to zero. Tests of physically handicapped children—the deaf, the blind, the mute, and

the crippled—have not shown them to be superior in some sensory ability which they did possess, and their average intelligence has proved to be somewhat lower than that of the physically normal children. Nor have mentally deficient children been found to excel in manual or artistic ability. The present consensus of expert opinion is that special talents are not found unless there is at least normal intelligence, but that superior intelligence is not necessary for special talents to occur.

Psychologists and educators are widely ready to believe that individual differences in most specific abilities are due to the factor of general intelligence plus the effect of varying environment, interest and training, plus variation in physical factors needed for that ability. However, in the creative and expressive fields, there is the tendency to retain the belief in specific inborn talent. Unfortunately, tests of aptitude in music and art measure mostly sensory capacity rather than creative talent, and outstanding sensory capacity is not always linked with creative talent. Inasmuch as good sensory capacity is necessary for good musical performance, tests like the *Seashore Musical Talent Tests* will successfully identify those who will attain only inferior results even with much training, but will have little success in the identification of those who with training eventually become outstanding musicians. As for graphic talent, though Goodenough found that in the early years a test of drawing ability can serve as a rather good test of general intelligence, in the later years no such relationship is found. On the other hand, individual cases have been found of high-grade mental defectives who, having a sort of photographic memory plus good manual dexterity, have been able to reproduce on paper anything they have seen with exact proportion and perspective and excellent detail. Nevertheless, such children have never become artists since the mentally-retarded lack the imagination and the emotional sensitivity which the artist in any field needs in addition to good craftsmanship. This common factor of imagination and sensitivity plus the evidence that quite a number of artists have worked successfully in more than one medium, has led some persons to believe in a special inborn trait of general creative ability and artistic inclination. Since

SPECIAL CLASS

educators have not yet devised techniques which clearly influence creative ability, it is difficult to disprove the hypothesis of "natural" creative talent except as one can point to eras in the history of a nation when talent in a certain field was relatively so prevalent that inherited capacity can be doubted to have been the one significant factor which produced the phenomenon. It is hopeful that Jersild, summing up the research in the development of musical ability, concludes that though there are large individual differences in musical ability as in other things, a systematic program of music education can be set up in music as in other fields of learning. (See *Child Development and the Curriculum*, Thirty-Eighth Yearbook of the N.S.S.E., 1939, Chap. VI.) Progressive schools have sought to answer the problem of how to select and train those with special talents by providing all students with wide opportunity and encouragement for artistic expression in the belief that this will at least develop æsthetic appreciation in all, even if genuine creative ability is not so easily trained. B.B.F.

SPECIAL CLASS. Pupils with mental and physical deficiencies are sometimes segregated in special classes within the same public school which educates normal children. When the special class is one including only one type of deficiency, instruction and care can be adapted to the needs of the children. The most common special class is that for children with retarded mental development, defined as below 70 or 75 I.Q. While the deaf and blind are usually educated in special schools, lip-reading classes are sometimes provided for the hard of hearing who attend the regular schools. There are also a number of sight-conservation classes for the partially blind, where a good deal of the instruction is oral and specially printed materials are used. The segregation of the cardiacs is less approved than the segregation of the mentally retarded or the partially blind. It is felt that segregation should be made only in those cases where the special deficiency prevents the child from benefiting from the instruction given in the normal class or where sufficient adaptation to the special health needs of the physically handicapped child cannot be made in the regular class. It is argued that defective children will have to learn to live with normal people and in a normal environment

and that, if possible, they must be trained to adapt themselves to such living. Even when it is best to provide special classes for children with a certain type of deficiency, the school organization should be such that the deficient children mix with the others in some classes and at some events.

Most special classes for the mentally retarded are in the elementary school but some are now provided in junior high schools where students can use the same shops and often be in the same shop classes as the other children, although their instruction in reading, writing, arithmetic, history, etc., is provided for in a special class. The special classes for the mentally retarded have proved their worth in that mentally defective children in special classes attain higher educational achievement than those kept in regular classes. The number of special class children who show serious maladjustments or become juvenile delinquents is fewer than those of similar I.Q.'s in regular classes. Prevocational and vocational training form a large part of the program for both the mentally and the physically handicapped of adolescent age.

At present, special classes are providing for only a small percentage of defective children who are not in special schools or institutions. The extra cost of the program, owing mostly to the small size of the classes, keeps many school systems from arranging for special education. Teachers of special classes occasionally get higher salaries and have training in addition to that of other elementary or junior high school teachers. To encourage special classes, some states provide more state aid for handicapped students educated in special classes than for students educated in normal classes. The State Education Law may designate certain types of special classes as either permissive or mandatory under certain conditions. A number of states include gifted children among those for whom special education must be planned. Special classes for the very bright are found in a number of schools. At present there seem to be about as many schools which are eliminating their special classes for the bright as there are schools which are just beginning to form them. (See *EXCEPTIONAL CHILD; HANDICAPPED CHILDREN; MENTAL DEFICIENCY.*) B.B.F.

SPECIAL DISABILITY. It is found occasionally that children with average or above average intelligence exhibit some special disability which prevents most methods of instruction from being effective. Color blindness is a special disability possessed by some persons who otherwise have excellent vision. "Word blindness" is a defect attributed to those of normal intelligence who have not been able to distinguish one word from another in spite of much perseverance. Since it is reported that many "word-blind" persons have learned to read by tracing the outline of the letters with their finger and later reading without the finger-tracing, it is difficult to tell just what this "word-blindness" consists of. At one time it was thought that a large number of persons were tone-deaf. Music teachers, however, now tend to claim that there are practically no persons so completely tone-deaf that they cannot learn to recognize different tunes. There have been cases of individuals over thirty years of age who up to that time had never been able to identify any melody, not even the national anthem, but who eventually did learn not only to recognize tunes but to sing songs. Speech defects such as stammering, stuttering, lisping, can also be listed as special disabilities. Where a particular learning depends upon a particular physical organ, deficiency in that organ may cause a special learning disability. When the physical disability cannot itself be measured, it is not always possible to tell whether the learning disability is due to an impoverished environment, to a teaching method not suited to that individual, to some personality maladjustment, or to an actual disability which cannot be overcome. (See **READING DISABILITY; REMEDIAL INSTRUCTION.**)

B.B.F.

SPECIAL SUPERVISOR—See **SUPERVISION OF INSTRUCTION.**

SPECIAL TEACHER. This term applies to the instructor who teaches a particular subject throughout a school or schools (i.e., special teacher of music, penmanship, art, etc.), as contrasted with the regular teacher who spends all of his time with a particular grade or class. The term is used also to refer to a helping teacher who assists the regular

teacher with atypical children. The objective in a situation of this kind is the individualization of pupil progress for both the typical and atypical.

The practice of having special teachers of particular subjects has been criticized as being contrary to the present emphasis on the child's integrated development. The elementary school child should be regarded, say these critics, as a rounded personality and not as the possessor of a series of discrete abilities, each to be cultivated by a specialist. Those who object to the employment of special teachers on this ground prefer to have the special subjects taught by the regular teacher, whose emphasis is on the total child rather than on the development of separate skills.

On the other hand, those who favor the appointment of special teachers of particular subjects point to the fact that no one teacher can be expert in all the specialized fields of speech education, art, music, health education, etc. To insist on having these subjects taught by the regular teacher is to invite mediocre teaching rather than the expert guidance of a specialist.

Many schools attempt to reconcile these opposing points of view by designating the special teachers as consultants who work with, but do not replace, the regular teacher. For example, when the students are at work on a project the art teacher is brought in to advise on the art phases, and the music teacher assists with the music. In this way, the students benefit from the special contributions of experts in the various fields, while the regular teacher continues to assume the responsibility of safeguarding the essential unity of purpose of all classroom activities.

L.M.C.

SPECIALIZED HIGH SCHOOL—See **COMPREHENSIVE HIGH SCHOOL.**

SPEECH CORRECTION. The correction of speech disorders in the United States is largely in the hands of educators. However, according to the White House Conference report of 1931, surprisingly few educational systems provide special teachers of speech correction. The report estimates that approximately 60,000 speech handicapped children receive re-education at the hands of teachers trained in speech improvement or

SPEECH CORRECTION

correction. This number indicates that only a beginning has been made in caring for the speech needs of an estimated two million children with speech handicaps in the schools of the United States. Since 1931, speech correction programs have become more widespread. Evidence of this is the recent establishment of state programs of speech correction in Missouri, Louisiana, Florida, and Indiana. Prior to 1931 only two states, Wisconsin and California, provided aid to communities willing to defray part of the salaries of speech correctionists.

Speech correction programs maintained by large city school systems (e.g., Detroit, New York, and San Francisco) have been in existence for a relatively long period of time. Corps of specialists in these systems ordinarily administer speech correction weekly to children in the elementary and secondary schools, and are assigned a number of schools for visitation and supervision.

Another source of speech correction is the clinics maintained by colleges, universities, and—to a lesser extent—hospitals and medical schools. Such clinics are listed by the American Speech Correction Association, which maintains a Bureau of Information at Queens College, Flushing, New York. The speech clinics maintained by colleges and universities serve not only their own speech-handicapped students but frequently the children and adults of their community as well. A few have instituted traveling speech clinics to serve outlying districts.

Speech Defectives. Children and adults suffering from speech and hearing handicaps are indeed numerous. A consideration of a few of the more common kinds of handicaps of this type, together with their estimated distribution, indicates that every community has a significant problem of speech and hearing re-education.

Cleft palate speech is one of the most mutilated and unintelligible kinds of speech. It results from a puncture or fissure in the hard or soft palates, or both, and is frequently accompanied by a split upper lip (harelip). Most cases of cleft palate are congenital, occurring about three times in every one thousand births. Even when the cleft is closed by surgery or by mechanical appliance the individual is likely to remain unintelligible until re-educated by a speech specialist.

Deaf mutism. Individuals born into the world totally deaf to speech sounds never learn to speak unless special methods of instruction are used. According to the Federal Census there is approximately one deaf mute to every 2,355 persons.

Lowered hearing. The hard-of-hearing person is one who learned speech in the normal way, either because his loss of hearing developed after he learned to speak, or because his hearing loss has never been severe enough to prevent him from learning speech in the normal way. Perhaps the most conservative estimate, based on numerous surveys, indicates that one and one-half per cent of the total population have such serious hearing losses that they are significantly handicapped in oral communication, and therefore would benefit by speech correction and by learning lip reading. (See DEAF, EDUCATION OF.)

Spastic speech. This disorder is marked by spasmodic utterance and movements of the speech mechanism and other muscles of the body. It results frequently from birth injury and is one of the most difficult kinds of speech disorders to correct unless given specialized attention during the individual's first decade of life. About seven infants in every 2,000 births are afflicted with spastic paralysis (Little's Disease), three of them dying before they reach the age of four years. Thus, about four out of every 2,000 children of school age are spastic and consequently need expert attention in motor and speech training.

Stuttering. This disorder of speech is marked by hesitancy and repetition in the production of sounds and words and is ordinarily accompanied by tics and involuntary movements. Few speech disorders cause the afflicted person such a constant sense of embarrassment and frustration as does stuttering. About one per cent of the total population is thus afflicted, male stutterers always outnumbering those of the female sex in a ratio of about seven to one.

Dysphonia, disturbance of the voice, is revealed most commonly in hoarseness and whisper-like qualities. The cause may be organic, psychological, or functional, but most kinds of dysphonia are amenable to improvement or correction with the help of the laryngologist and the speech correctionist.

Hysterical mutism is relatively rare except in times of war and other great social crises.

It is often a main symptom of "war shock" (formerly called "shell shock").

Miscellaneous disorders. While such disorders as those mentioned above are surprisingly numerous, there are other kinds, in even greater incidence, which are often referred to broadly as "bad habit" speech defects. Among these are some kinds of lisping, oral inactivity, infantilisms, delayed speech, and sound substitutions. These speech defects should also be treated at the earliest possible time to provide permanent correction and to prevent development of feelings of inferiority. Foreign accent may also be considered in this latter group, since its eradication is based on speech re-education.

Speech Correction Classes. Most disorders of speech are amenable to improvement or correction by re-educational techniques. Many require individualized attention; on the other hand, the large majority, especially those of functional or "bad habit" origin, may be improved by means of class methods. In large school systems it is possible to form small classes, usually no larger than ten members, of children with similar disorders of speech and of similar age. For example, the speech correctionist may re-educate a group of ten-year-old lispsers by calling them to a special class two or three times weekly, and by enlisting the active cooperation of the classroom teacher in holding her students at all times to a reasonable standard of speech. J.F.B.-I

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SPEECH EDUCATION. Speech education has become an increasingly important part of curriculum planning within the last twenty-five years. At the turn of the century speech education throughout the United States consisted mainly of courses in elocution, debating (*q.v.*), rhetoric, and public speaking. Such courses were taught primarily in universities and colleges, the University of

Michigan, the University of Wisconsin, Cornell University, and Hamilton College being notable pioneers in this respect. Whatever speech education existed in the secondary schools was of an elocutionary nature. It became apparent eventually that platform address and stage speech were not the only types of oral communication and that adequate private as well as public speech was a necessary attribute of the well-integrated personality. Courses in the speech arts and speech sciences developed with increased emphasis on phonetics, speech pathology, and speech psychology. Although the focus on such courses was in colleges and universities, isolated high schools throughout the country began to expand their offerings in speech, developing especially work in public speaking, debating, and dramatic art. (See DRAMATICS.) At the present time there is still a lamentable lack of uniformity not only in course offerings in Speech of well-established high schools, but also in the requirements for teaching such courses.

Country-wide recognition has been even more dilatory at the elementary level than at the secondary school one. As long ago as 1910 the City of Detroit introduced speech correction into the elementary schools. This program was among the very first in the country. State departments of speech correction were initiated a few years later with the programs of Wisconsin and California. However, only a few states support programs of speech correction. State departments of education, nevertheless, are in many states cognizant of the need for a speech program and are attacking the problem wisely from the standpoint of teacher training. New York, for example, now requires a minimum of 36 semester hours in speech training in the teacher training period of speech teachers.

A recent recommendation, made by a committee appointed by the Board of Education of the City of New York, included the suggestion "that in the future the license to teach speech correction in the New York City Public Schools should be based upon 45 college or university semester credits in speech . . ." This recommendation is representative of a country-wide tendency to raise standards for the training and selection of teachers of speech and speech correction.

SPEECH READING

Many educational systems do not have a corps of specially trained teachers of speech or speech correction. Even so, the need for providing speech education for students is widely recognized. Such cities as Baltimore, Dayton, Buffalo, and Seattle include in the required curricula of the elementary grades practice in pronunciation, oral reading, and public speaking. Hence, the classroom teacher frequently is called upon to give instruction in speech even though she has no specialized training in the subject.

Likewise, in the secondary schools there is lack of uniformity in the offerings in speech education. Frequently, the so-called speech arts—dramatics, choral speaking, oral interpretation, and forensics—are relegated to one speech elective in the senior year of the English classes, to be included along with composition and literature. Many are the secondary schools that would be devoid of speech education were it not for clubs and other extracurricular activities to foster debating and dramatics especially.

Perhaps the greatest growth in speech education within recent years has been effected in the colleges, teachers colleges, and universities. Many of these institutions now have full-fledged departments of speech or speech education with required courses and orientation work in speech for all students. In institutions that offer a speech "major" or concentration the interested student may select courses from three main divisions of speech education:

The Speech Arts, e.g. Voice and Diction, Phonetics, Oral Interpretation of Literature, Choral Speaking, Dramatics, Play Production, Radio Production, Public Speaking, Debating, Group Discussion.

The Scientific Aspects of Speech, e.g. Basic Voice and Speech Science, Psychology of Speech, Experimental Phonetics, Principles of Speech Correction, Practicum in Speech Clinic.

Speech Pedagogy, e.g. Teaching Speech in the Elementary School, Teaching Speech in the Secondary School, Teaching Lip-Reading.

Since the ability to function effectively with a group is a prime necessity for the individual living in a democracy and is significantly dependent upon the ability to speak and listen effectively, it would seem that speech education will continue to grow at all educational

levels. The rapid rise in memberships in The American Speech Correction Association and the The National Association of Teachers of Speech within the last few years would seem to be only one piece of evidence of the decided spread of speech education at the hands of experts throughout the United States.

J.F.B.-1

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SPEECH READING. *Speech reading*, more widely though less correctly called *lip-reading*, is the understanding of speech by the interpretation of movements of the lips, jaw, tongue, and throat of the speaker. When speech and speech reading are taught to the deaf and deafened, the *oral method* is said to be used rather than the *manual method*, or sign language.

Speech reading and speech instruction for the deaf were introduced into the United States in 1867, with the establishment of two schools in New York City and Northampton, Massachusetts. Although sign language is still widely taught, it has gradually been displaced by speech reading. Because the former is easier, and thus less expensive, to learn it will probably have a tenacious existence. The quickened interest in speech reading may be attributed in part to the invention of audiometers, machines used to administer objective hearing examinations. As a result of these examinations, estimates are available indicating that more than ten per cent of the school population have defective hearing. Another factor in the spread of speech reading is the knowledge that much defective hearing is progressive, that is, it becomes increasingly severe with advancing age. Hence, many authorities recommend that individuals whose central hearing loss is greater than ten sensation units (a sensation unit [SU] being an audiometric criterion) be taught speech reading along with speech improvement and ear training.

On the whole, the earlier the deaf or deaf-

SPEECH TEST

ened person is taught speech and speech reading, the more satisfactory will be his educational and social adjustment; for it is obvious that the individual who must rely solely on sign language for communication is restricted in his participation in many social activities. Moreover his use of sign language is likely to attract unwelcome attention and curiosity. On the other hand, the use of speech and speech reading provides him with access to a more normal life. Although the ability of speech reading may be acquired successfully at all ages—in one large American speech clinic students of speech reading range in age from three to sixty-three years—some persons learn rapidly, while others require years of intensive effort to become proficient. The extent of the hearing loss, the length of time elapsed between its onset and the inauguration of speech reading lessons, attentive-listening span, intelligence, speech reading readiness, and many other factors are variable determinants of proficiency in speech reading.

There are a number of relatively constant factors that make speech reading difficult. For example, some speech sounds are not visibly produced, such as *n* in the word *fan*; the pairs of cognates *s-z*, *f-v*, *th* (*thin*)-*th* (*thou*), *sh-zh*, etc., are not ordinarily confused by the normal ear, but because they are visually undifferentiated they present difficulties to the ear that does not hear them.

A similar problem is presented by *homophones*, that is, words that look alike in the speech reading: *pear-bear*, *abuse-amuse*, *ace-haze*, *pat-mat*, etc. Thus, the speech reader must learn to gather fifty per cent or more of his meaning principally from context. Other recurrent irritations to the speech reader are facial impassiveness—or the other extreme, exaggerated “mouthing” of words—in the speaker, poor illumination, extraneous bodily movements of the speaker, technical and unusual words, etc. Because of the many difficulties speech readers encounter, they should be given preferential seating, good illumination, and intelligent consideration at all times.

Notwithstanding such obstacles, speech reading is a real necessity in the education of the deaf and deafened, because with it their hearing appears to improve. Because speech reading lessens mental strain, the speech reader is less likely to suffer from fatigue, and fatigue increases loss of hearing. Speech

reading aids also in the comprehension of partly heard words. Finally, it may be emphasized that speech reading encourages mental stimulation, thus making the afflicted more desirable companions and associates. (See DEAF, EDUCATION OF.) J.F.B.-1

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SPEECH TEST. The speech test is ordinarily designed to determine proficiency in the sounds of speech. Speech tests are of three kinds: screening, diagnostic, and achievement. The screening test, although short—taking no more than two or three minutes for each examinee—generally includes oral reading as well as impromptu speaking because some speech disorders, such as stuttering, may be revealed in one and not the other speech activity. The material to be read is composed of vocabulary within the individual’s comprehension. For non-readers, pictures are used instead. The reading material may be artificially loaded with a recurring sound, i.e., *Our chow found the brown trousers down by the fountain*, or may contain words with a casual distribution of sounds. The reading material is often followed by one or more questions designed to encourage impromptu speaking. Such a speech test, when administered by an expert, is adequate for purposes of isolating the speech handicapped.

The diagnostic test requires much more time and includes: (1) an examination of the speech mechanism, namely teeth and occlusion, tongue, hard and soft palates, nasal passages, lips, and glottis; (2) an examination of breath capacity; (3) an audiometric examination; (4) an examination of the individual’s ability to repeat sentences in the intonational patterns rendered by the examiner; (5) an examination of the individual’s ability to use each speech sound in the positions in which it occurs in words and in combinations. Examinations of handedness, intelligence, etc.

are frequently needed to supplement the diagnostic speech test.

The achievement speech test is administered periodically in speech correction classes and clinics that use re-educational techniques mainly. The achievement test, which is designed to determine the progress of an individual undergoing a speech rehabilitation program, is often recorded on a phonographic disc for purposes of motivation and criticism.

The term *speech test* is also occasionally applied to various examinations designed to measure ability in oral interpretation, public speaking, discussion, etc. J.F.B.-1

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SPEED TESTS — See STANDARDIZED TESTS.

SPELLING. After forty years of intensive psychological research on spelling, scientifically validated principles of method have not been established and conflict of opinion persists on such major issues as the curriculum and the function of generalization. However, the essential features of a working program in spelling instruction can be delineated.

Spelling vocabulary should be limited to the most important words needed in the writing of children or adults or of both, depending on the educational philosophy of the school. The standard research technique for determining these words is to tabulate the vocabulary of personal and business correspondence, minutes of meetings, children's letters and compositions, and similar writing in terms of such criteria as frequency of use and spread of each word in different types of writing. One master compilation is Horn's "A Basic Writing Vocabulary" of 10,000 words, derived by the author and earlier workers from studies of five million running words of adult writing. McKee's "Children's Writing Vocabulary, Grade by Grade", consisting of 5,000 words culled from three mil-

lion running words, is in process of integration. Since the overlap of both studies is 80 per cent and most elementary schools limit their spelling lists to 4,000 words, a valid and reliable basic list of the 4,000 words common to both, can readily be constructed. For each class, words needed temporarily in connection with projects, activity units, or traditionally organized subjects can be added. The individual pupil can list his own bugbears. However, in schools experimenting with a total experience curriculum, no spelling list is used, so that only words needed in current units are studied.

The grade placement of a given word depends on the level at which children first use it extensively in their writing, on its learning difficulty, and on the frequency of its misspelling. Of these factors only the last has been adequately determined by the construction of spelling scales. The most troublesome words should be repeated within the grade and at higher levels with calculated frequency. As to grouping of words, the preponderance of authority favors grouping by similarity of structure but not by sound except for phonic families; e.g., ate—date, piece of pie, almost—always, all right—all wrong. Though opinion on the grouping of homonyms is sharply divided, it seems sensible to juxtapose them only when the problem actually arises and then to differentiate them by meaning; conversely, teaching pair—pare—pear together merely invites gratuitous trouble.

Extensive research on spelling rules points to teaching each word as an individual problem in the lower grades and the inclusion in the upper grades of very few rules, taught inductively, as supplementary devices to remove real learning difficulties. The rules with fewest exceptions are those governing the formation of derivatives and inflected forms; e.g., words ending in *y* (keys, buried, happier), doubling final consonants (hotter), and final *e* followed by a suffix (ninety, lovable).

The general characteristics of progressive teaching techniques are clearly discernible. With increasing maturity, the learner sees how misspelling weakens effective written communication of thought and experience and he becomes sensitive to the social consequences of poor spelling habits. He understands the

sources of his spelling list, is urged to use the newly mastered words in his own writing, and, in individual study, concentrates on his own errors, with a definite job intrinsically motivated. His interest in and attentive repetition of a comparatively irrational sequence of letters constituting words of an unphonetic language, are sustained by a variety of drill devices, games, and graphs of individual and group progress. Typical devices are word building games, guessing games, use of the typewriter, anagrams, and individual word dictionaries.

About 75 minutes weekly are usually devoted to the thorough study of relatively few words. If grade placement is correct, spelling is directly attacked as spelling, so that other phases of vocabulary study such as word meaning, derivation, and sentence building are admitted only to the extent that they insure correct spelling. Preliminary discussion of the most common difficult spots in the basal list for the unit is followed, as a rule, by a pretest to determine common errors and individual weaknesses. The objection to a pretest on the ground that initial errors persist is not supported by the results of research. As a test, dictation in column form is as effective as presentation in interesting context. Then follow class instruction, supervised individual study, and retesting.

Authorities are in unusual agreement on certain indispensable phases of group and individual study of spelling. A definite, but not ritualistic, method of study should be mastered. It should provide a clear initial perceptual attack, auditory and visual, on syllabic units. It should develop the habit of attention to details, including the writing of the word followed by comparison with the model and several independent attentive repetitions of the last mentioned procedure. It should develop resistance to false analogy (already—alright). With increasing linguistic maturity, especially on the secondary level, should come greater versatility of attack on new spelling problems.

The vital step is supervised individual study. Even on the elementary level few words are missed by fifty per cent or more of the pupils and no one difficult spot is the same for as many as half the class. The individual pupil should be helped to discover the method of independent study optimum for him. It

may be primarily auditory, or visual, or kinæsthetic, or a combination of these; but it must be a definite procedure consistently followed. The learner should develop the habit of checking his written work for spelling, a habit compounded of attention to letter sequence, proof-reading ability, concern over correctness, and comparison with a model such as the dictionary entry. His individual list of misspellings should be checked for correctness and reviewed systematically. The proficient speller should be excused for more productive work.

Retesting should be frequent and cumulative. Mastery of a word should be attested to by correct use in free writing at least three times. Measurement of progress can be achieved only by retesting on the identical words, and not on words of equivalent difficulty selected from a spelling scale.

Children with spelling difficulties can be helped materially only through diagnosis and remedial teaching, the thoroughness of which depends on the extent of their retardation. A pupil's general spelling status can be determined through a standardized test derived from a spelling scale. Analysis of the types of error he makes most frequently on informal classroom tests points to definite remedial instruction. Such types include insertions (athaletic), additions (waite), omissions (wether), substitutions (sity), transpositions (recieve), and phonetic errors (thay). Close observation, especially during supervised individual study, often reveals such factors as an attitude of inferiority toward spelling, general disregard for details, erratic attack on language problems, and poor motor coordination in writing (chothing for clothing). Often these manifestations, concomitants, and causes of poor spelling are effectively attacked by providing pupils with adequate techniques of independent word study, such as recognizing short words within longer ones, and with motivated drill on practice materials directly related to the learner's difficulties, like puzzle games calling for cutting up words into syllables and putting them together again.

Cases of serious retardation require additional study of the whole child as a person and learner. Physical factors, like poor vision; emotional elements; such environmental factors as bilingualism, poor reading, and

word analysis must be determined. The administration and interpretation of a series of diagnostic tests, like the "Gates-Russell Spelling Diagnosis Tests", though time consuming, reveal points at which learning breaks down and indicate the need for a differentiated remedial program, which capitalizes on whatever compensatory "abilities" in spelling the learner has so that he may develop a satisfactory method of study and a positive attitude toward solving his spelling problems. (See LANGUAGE ARTS.) S.S.

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SPELLING, PHONETIC. Almost any letter in the English alphabet represents from two to eight different sounds, with the eight long vowels recorded in sixty-six different spellings (*sh* in *share*, *sure*, *schist*, *chef*, *ocean*, *nation*; *a* in *make*, *sail*, *weigh*, *steak*, *gauge*, *gaol*, etc.). Ideal for children and foreigners studying English would be a system of spelling in which each letter represents only one sound. Such a system is the International Phonetic Alphabet, but it has slight chance of general adoption because it transforms the general appearance of the printed page, impedes efficiency in silent reading by encouraging vocalization, entails enormous expense in reprinting books, and is too radical for lexicographers, teachers, and publishers of manuals of style.

Of the plans for simplification offered since the 16th century, the most promising is that of the Simplified Spelling Board, many of whose recommendations are included as alternative or even preferred spellings in such dictionaries as the *Century*, *Funk and Wagnall's Standard*, and the second edition of *Webster's New International* (1934). The most important suggestions include simplification of digraphs (*caracter*, *cigaret*, *glas*, *helth*, *laf*, *senery*), elimination of silent *e* in certain groups (*giv*, *engin*, *traveld*), elimination of other silent letters (*det*, *catalog*, *tho*, *thru*, *bild*, *gost*, *crum*), reduction in number of spellings for the same sound (*chief-receiv*,

precede-proccde), elimination of troublesome spellings of unaccented vowels (*forfit*), elimination of duplications (*theater-theatre*), and other modifications toward phonetic or uniform spelling (*esthetic*, *advize*, *tipe*).

Admittedly any such moderate program of reform fails to solve the basic problems of consistency, especially as to doubling of consonants, and of substitution of one method for the traditional five for indicating vowel length, particularly with reference to final silent *e*. The elimination of the more troublesome inconsistencies, such as the plural forms of words ending in *o* (*solos*, *Negroes*), is likely to be adopted more readily than changes that violate traditional principles of English spelling. S.S.

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SPENCER, HERBERT (1820-1903).

Spencer has an important place in the history of nineteenth century thought in many fields. He attempted a synthesis, or *Weltanschauung*, in which the evolutionary hypothesis developed in biology by Wallace, Darwin, and others was carried over into the social sciences, especially into the fields of ethics, sociology, and education.

In its educational application, Spencer's work was pointed toward several related objectives. The first of these was to sound a clarion call to the leaders of English education to reflect in their curricula and methods the scientific achievements of the first half of the nineteenth century; it was a throwing down of the gauntlet to those who placed the humanities at the focus and periphery of the English "public" schools, to the almost complete exclusion of the sciences. These were the schools then preparing the prospective leaders of English society. Spencer was chagrined that the great advances in pure science (in astronomy, geology, biology, and physics) and the epoch-making improvements resulting from applied science (manufacture, transportation, communication, and the relief of suffering) should find no echo or recognition in contemporary English education.

A second objective that tintured his educational theory was the attempt to reinterpret the purposes and procedures of education in

terms of the evolutionary hypothesis. A third objective, albeit probably less conscious in his work, was to restate some of the educational ideas of continental thinkers, especially of Rousseau (*q.v.*) and Pestalozzi (*q.v.*).

The main vehicle through which Spencer established his influence on English education was a group of four essays, separately published in periodical journals between 1854 and 1859, and published in book form in 1861 under the title *Education; Intellectual, Moral, and Physical*. Their great influence rested partly on Spencer's power to combine a rich fund of scientific information with unusual power of exposition.

"What Knowledge Is of Most Worth?" was the title of the first and most important of the four essays. In it Spencer set up the ultimate aim of education as complete living. Next, he analyzed complete living into its five cardinal elements: direct self-preservation (health); indirect self-preservation (earning a livelihood); parenthood; citizenship; worthy use of leisure. For each of these areas he argued the superiority of the sciences over the humanities then entrenched in English secondary schools. With great rhetorical effectiveness, he presented his polemic, not for an equivalence of the sciences, as was the case with Eliot (*q.v.*) in America, but for their hegemony in the curriculum.

In the course of this brief for the sciences, Spencer extended the denotation of the term where it served the purposes of the argument. Thus, psychology was adduced as an indispensable science for the complete living of the parent, and sociology as an indispensable science for the successful earning of a livelihood in an England which was becoming rapidly industrialized.

Following the brief for the sciences on inherent content grounds, Spencer argues for them as superior to the prevailing humanities on disciplinary grounds—their value in training the memory, the understanding, the judgment. He argued their superior merit in fostering independence, also in generating respect for the laws which underlie all phenomena—a contribution to the development of religious character.

Intellectual, Moral, and Physical Education. The three other essays contributed little that was new to the stream of educational thinking, but they did restate positions earlier maintained by important educational

leaders. Thus, the essay "Intellectual Education" was a needed restatement of some of the main Pestalozzian tenets (See PESTALOZZI), and of the culture epochs (*q.v.*) theory, one of the most curious and persistent bequests of the evolutionary hypothesis to curriculum thinking. The essay "Moral Education" resurrected for many readers the doctrine of natural punishments (*q.v.*), previously preached by Rousseau (*q.v.*). "Physical Education" stated many common sense rules as to diet, clothing, and exercise, and cogently attacked the "hardening process," which had been urged by Locke and later by Rousseau.

Spencer must be given a place in the history of the movement to broaden the curriculum, especially in the movement to admit the sciences to the curricula of secondary and higher education. He would have them admitted not on sufferance, but on their own merits as bearing on modern living, interpenetrated as it is by pure and applied science. P.R.V.C.

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SPONSOR—See EXTRACURRICULAR ACTIVITIES.

STABILITY, EMOTIONAL—See MENTAL HYGIENE.

STAFF MEETING — See TEACHERS' MEETINGS.

STANDARD DEVIATION—See VARIABILITY.

STANDARD ERROR—See RELIABILITY.

STANDARD MEASURE—See SCORES, CONVERSION OF.

STANDARD SCORE—See SCORES, CONVERSION OF.

STANDARDIZED TESTS. Tests are said to be standardized when they have been so constructed that they can be administered and interpreted under uniform conditions. The terms *standardized tests* and *standard tests* are often used interchangeably. Standard tests are widely employed today for measuring various aspects of educational achievement and of intelligence. They are also used

STANDARDIZED TESTS

less extensively for measuring numerous traits of personality and character.

Standard tests may be classified in several ways. According to method of administration, tests are either individual or group tests. According to function measured, tests may be classified as intelligence or mental tests, achievement or educational tests, and character and personality tests. (See **ACHIEVEMENT TESTS, CHARACTER AND PERSONALITY TESTS, INTELLIGENCE.**) On the basis of content, intelligence tests may be further subdivided into verbal, and nonverbal or performance tests. According to scope, standard tests may be classified as general or specific. For example, a general test of intelligence affords an all-round measure of learning capacity, while an aptitude test measures learning capacity in a specific area such as algebra or music. In like manner, a survey test is a test of general achievement, and is different from a practice test or a diagnostic test, the scope of the latter two tests being more restricted.

From still another point of view, tests may be classified as speed tests or power tests. In a speed test, the items are of equal difficulty and are administered with short time limits in order to test the speed of the learner's responses. Speed tests are important in skill subjects, such as handwriting, typing, shorthand, etc. A power test is one which measures the level of difficulty of the tasks that an individual can perform in a given field, without regard to time. Most standardized tests are scaled, that is, the items are arranged in order of increasing difficulty, and time limits are set for the entire test or for each part of the test.

A standardized test of school achievement differs from an ordinary teacher-made test in four essential respects. In the first place, the content has been standardized. This means that each item has survived most careful scrutiny by competent persons, and that its difficulty and value have been determined by rigid experimental processes that have eliminated its weaker fellows. In the second place, its method of administration has been standardized. This means that definite directions have been worked out, usually with appropriate time limits and the like. In the third place, the method of scoring has been standardized. This means that scoring keys have been prepared and that definite rules have

been formulated for marking the papers and for determining the scores on each part and on the test as a whole. Finally, the process of interpretation has been standardized, at least in part. This means that tables of comparative data are available for interpreting the various scores made on the test. These data, or norms (*q.v.*), are usually the average scores which have been made by large numbers of pupils, distributed over wide geographical areas and representing various types of schools. These average scores are grouped, as a rule, according to chronological age or school grade.

Because standardized tests have the merits of a carefully selected content (the difficulty and the value of which have been determined experimentally) and of norms to facilitate interpreting the scores, they are likely to be superior to nonstandard tests for comparing the achievements of a student or a group, with the achievements of other students either in the same school system or elsewhere. The very standardization of content, administration, and interpretation which makes these tests so useful for comparative studies also detracts from the flexibility of the tests so that they may not be well adapted to situations which depart widely from those of the typical school. This inflexibility need not be an insurmountable obstacle, however, since a test may be standardized on the basis of local conditions, especially if the school or the school system is large enough. The *Metropolitan Achievement Tests, New York City Edition*, for example, have been designed specifically to meet the needs of the New York City schools. As a rule, a complete program of measurement will require the use of nonstandardized tests as well as standardized tests. The outstanding advantage of informal, nonstandardized tests is that they are highly flexible and can be tailor-made to fit local conditions. Their construction, however, requires considerable time and skill.

Standardized tests have many functions: among these the most important are the administrative, instructional, and research functions. The administrator may use these tests as a basis for the classification and promotion of pupils, or as an aid in the evaluation of teachers and school programs. The teacher may see these tests as valued guides in educational diagnosis, as a source of student moti-

vation, or as a means of assigning marks. To the research worker, the standardized test may be used as a means of measuring student growth under varying conditions. To be sure, these illustrations merely exemplify the varied ways in which standardized tests are used; they do not indicate all of the functions these tests can serve. To some extent, tests used for these various functions are actually different tests. Survey tests, for example, are more likely to be used for administrative than for instructional purposes, whereas diagnostic or practice tests are chiefly instructional. Which tests the research worker will use depends largely on the specific problem with which he is concerned. Many tests may serve all three types of functions. Survey tests, for example, may be used for motivating learning, for classifying pupils, and for measuring the achievement of large numbers of pupils.

C.C.R. and J.J.

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STANDARDS OF ACHIEVEMENT.

It is a common educational practice to provide, for administrative purposes, measures of pupil achievement on the basis of 100 per cent (presumably representing perfection). The "passing" mark is usually not less than 60 per cent nor more than 80 per cent. Not uncommonly, letters are used to represent achievement, such letter grades, however, being based originally on per cent marks. The percentage that is regarded as a passing grade varies considerably in different countries; in England, for example, the passing mark is normally about one-half as high as that used in this country.

There are several assumptions underlying the practice of using 100 per cent as perfection and of having a "passing" standard. First, pupils must be labeled as having passed or failed in the sense that they have learned enough or not enough of a given subject. Secondly, such a mark represents an amount of achievement; for example, 70 per cent

signifies seven-tenths of perfection or of the maximum amount and quality that should be expected. Thirdly, such a mark is a good measure of what is adequate or inadequate achievement. And finally, such measures are assumed to provide a sound basis for determining whether pupils should be promoted or certified.

The use of letter grades such as *A* to represent 90 per cent or over, *B*, 80 to 89 per cent (and in more recent years terms such as *H*, *S*, and *U* for *honor*, *satisfactory*, and *unsatisfactory*), and so on, indicates dissatisfaction with the per cent method of evaluating pupil achievement. The hundred per cent standard, although apparently definite and objective, lacks significance. Perfection in achievement in a school subject can hardly be expected; and there is obviously marked disagreement on what would constitute maximum expected achievement.

In like manner, although a passing mark of 70 per cent (or a similar value) has the appearance of definiteness and objectivity, it is actually arbitrary and lacking in significance. There is no basis for deciding that adequate achievement is 50 or 60 or 90 per cent of a presumed 100-per-cent achievement. The significance of such a passing mark is further reduced by subjectivity both in what it represents and in the methods used in evaluating pupil achievement.

There is virtually no objective and accurate basis for determining standards of achievement in school work. Objective tests of various sorts are accompanied by norms (*q.v.*), which represent typical achievement. Norms are not standards and do not represent expected achievement. They cannot be used as standards until they are evaluated in terms of criteria of expected achievement—criteria that do not exist. It is probably not incorrect to state that up to the present the educational processes in our schools have not been based on sound standards of achievement. In other words, it is not possible to state, for example, in terms of experimental evidence, that after a pupil of a certain age, ability, and background has experienced a certain amount and type of learning, he should have acquired certain specified learnings. There is now, and always has been, a serious need for determining standards of achievement. Without them there is a lack of real knowledge of the kind of learning the pupil has actually

STATE AID

acquired—corresponding in definiteness, for example, to the achievement in typewriting that is characterized by the ability to type forty words a minute with one error per 150 strokes in typing straight matter without numbers and characters, of a specified syllabic intensity.

The problem of standards of achievement is further complicated by the question of whether standards should be in terms of immediate learning or the residuum at a later date. Entirely apart from the influence of forgetting, the achievement some time after the original learning took place may be markedly less than the immediate achievement, depending upon the nature of the original learning. Where meaning does not exist and the learning is entirely rote, sheer drill may produce apparently good achievement. After a comparatively short time, almost none of this "learning" may remain. Moreover, it is not the amount the pupil learned at the time the learning took place but the amount he has available for use when it is needed that probably gives a truer picture. The usual school grades therefore offer only an inadequate, and sometimes an invalid and unreliable, measure of the student's abilities and potentialities.

J.S.O.

STATE AID. The term *state aid* refers to the payment of funds from state sources to assist in defraying the expenses of maintaining public or private schools of elementary, secondary, or collegiate grade. In all states of the Union a portion of the financial support for public elementary and secondary schools is derived from state sources. State controlled colleges, universities, and special schools are financed largely from state funds. In some cases, a relatively small amount of state money is paid for the support of privately controlled schools.

Historical. The principle of state aid for schools dates from the establishment of permanent school funds derived from the proceeds of sales of school lands and money grants made to the states by the federal government. The admission of Ohio in the year 1802 marked the beginning of this policy, although state support had its roots in much earlier times. For a time after the establishment of permanent school funds it was hoped that receipts from this source would in time support all the needed schools. It soon be-

came evident, however, that this hope was not to be realized and that the states through taxation must aid in the support of education. The slogan "the wealth of the state must educate the children of the state" was recognized as early as 1825, although it was not until much later that the states through taxation made any considerable contribution to the support of the schools. Not until recently has this support been considered in any way adequate, and even today it is very small in some states.

During the period from 1890 to 1938, school support from permanent funds and land leases decreased from 5.4 per cent to 1.1 per cent of all revenue receipts. Although the amounts of money increased, total school costs increased so much more rapidly that the decrease in percentage was the result. Receipts from state taxation and appropriations decreased from 18.4 per cent in 1890 to 13.8 per cent in 1920, but increased after that year to 28.5 per cent in 1938.¹

Amount of State Aid. In 1938, state aid for public elementary and secondary schools was derived almost entirely from taxation and appropriations, from permanent school funds (mostly state), and income from school lands. The total amount reported from these sources was \$656,744,116 or 29.6 per cent of all revenue receipts for schools. The amount and percentage from each source is shown in Table I.

TABLE I
Amount of State Aid in 1937-38¹

Sources of State Aid	Amount	Percentage of All School Revenue
Permanent School Funds and Lands	\$ 24,029,905	1.1
Taxation and Appropriations	632,714,211	28.5
Total	\$656,744,116	29.6

Although the percentage of state school revenue derived from taxation and appropriations for the nation as a whole is substantial, there is great variation among the states. In 1938 there were ten states in which state aid from this source amounted to more than 50 per cent of the revenue receipts for schools. Delaware was highest with a percentage of 92.8. At the same time there were thirteen states in which state aid from this source contributed less than 10 per cent of the school revenue. Oregon and Colorado were lowest with percentages of 0.2 each. As sources of

state aid, permanent school funds and land leases provided 17.1 per cent in New Mexico and 15.6 per cent in Wyoming, but in thirteen states there was no school income from this source. For the nation as a whole, the contribution was 93 cents per pupil enrolled.¹

State aid, or moneys derived directly from state governments for the current maintenance of 586 publicly controlled colleges and universities, including teachers colleges and normal schools, amounted, in 1938, to \$133,448,299 or 50.9 per cent of the income of these schools. For 1,000 privately controlled colleges and universities, state aid during the same year amounted to \$7,510,824 or 2.9 per cent of their income. For the entire group of publicly and privately controlled institutions, state governments contributed 27.0 per cent of the income.¹

The constitutional or statutory provisions of many states prohibit the use of public money for sectarian private schools. In a number of states a relatively small amount of state aid is paid to schools under private auspices. Maine grants state aid to privately controlled academies and in several other states elementary or high schools operating under the cooperation of the church and public authorities receive some public funds. Indirectly, public support is given to private institutions by exempting the property of such institutions from taxation. On the other hand, many private institutions contribute much more to public welfare than they receive through tax exemption. Some states provide for free textbooks and free transportation for children attending private schools.⁴

Distribution of State Aid. As soon as the states began to raise money for schools on a state-wide basis they were faced with the problem of how to distribute such funds. Through more than a century of experience with various distribution plans, a number of methods stand out as those most frequently used. Three of these are the distribution of state aid on the bases of need, reward for effort, and equalization.

The basis of distributing state aid according to need takes into consideration only the size of the educational task in a community as measured by the number of pupils on the census rolls, the number enrolled, the number in attendance, the number of teachers employed, or the number of schools maintained.

This basis is also known as the "flat grant" method of distribution. It has persisted throughout the history of state support and remains today as one of the most frequently employed bases of distribution.

The reward for effort basis recognizes the need for the state to subsidize special community educational undertakings and to distribute a portion of the state aid as special subsidies. There are many forms of such special aids today as, for example, high school aid, consolidated school aid, textbook aid, transportation aid, vocational class aid, and aids for various other types of special educational projects.

The equalization basis for the distribution of state funds recognizes the need for greater equality in the support of schools. In its use funds are distributed in such a way as to permit all districts or counties to maintain a satisfactory foundation program of education without exhausting the tax resources of the community. Measures of need and ability to pay are employed in such a manner as to permit greater state aid quotas to the poorer districts and smaller quotas to the wealthier ones. When the local units can qualify for equalization aid without exhausting their local tax resources, the remaining tax leeway may be used for the improvement of the local educational program above the minimum required. Although this basis is relatively new there has been much interest exhibited by the states and many have adopted plans for the distribution of all or a part of their state aid on this basis.

State Centralization and State Aid. As the proportion of state aid to schools has increased, the question of the effect of such increased aid upon centralization of the control of education has been raised. There are those who hold that state centralization will be the result of increased state aid. Because they fear highly centralized control of the schools, they oppose increased state aid. Opposed to this contention are those who hold that the support of education and its control are entirely separate and that control need not and does not follow the dollar. According to this view of the separability of control and support, the allocation of the controls between the state and the local district need not be influenced by the source of the support. It is entirely feasible to have local control

with state support, or local control with local and state support, or, again, local and state control with local and state support. The practice in most states is to give both the local school districts and the state certain responsibilities in the control as well as in the support of education. (See FINANCE, SCHOOL; FEDERAL AID TO EDUCATION; STATE CONTROL OF EDUCATION; SUPPORT OF EDUCATION.)

W.C.R.

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STATE BOARD OF EDUCATION—

See BOARD OF EDUCATION, STATE.

STATE CERTIFICATION OF TEACHERS—See TEACHERS, CERTIFICATION OF.

STATE COLLEGES AND UNIVERSITIES. State colleges and universities comprise those institutions of higher education directly under the control and support of the states. Four principal types or groups of schools are included: (1) state universities, (2) land-grant colleges, (3) professional schools, and (4) junior colleges. Some of these institutions, especially the junior colleges, are under the control of municipalities; but are here classed as state schools. Privately controlled colleges and universities, even though they receive some state support, are not regarded as state schools.

Historical. State colleges and universities in America arose during the early years of the national period. While they had their beginnings in the privately controlled colonial colleges, great impetus was given them through the ordinance for the disposition of the lands in the Northwest Territory in which land grants were made for state universities. The earliest of these was made in the state

of Ohio, in which two townships of land were reserved for a state university. Public-land states admitted after 1802, the year in which Ohio was admitted, received at least one township of public land for seminaries of learning or universities. (See LAND GRANT COLLEGES.)

In the Constitutional Convention of 1787 an effort was made to embody provisions for a national university. Although the provisions were not adopted and subsequent agitation for this project was ineffectual, the attempt shows the interest of the founders of the Constitution in higher education. Instead of one National University, the states were to have their own state colleges and state universities.

It is difficult to trace the rise of state universities since a number of them began as private institutions and were later brought under state control. Several were founded during the colonial period only to pass out of existence in later years. The University of North Carolina, chartered in 1789 and opened in 1795, is one of the earliest of these institutions to survive as a present-day state university. Others were the University of Vermont, organized in 1791 and the University of Virginia, organized in 1815³.

The Morrill Act of 1862, which provided federal aid to the states for colleges of agriculture and mechanical arts, gave impetus to the establishment of many such institutions through the nation. In some states separate institutions were established, whereas in other states, colleges of agriculture and engineering were made an integral part of state universities. Through subsequent legislation providing for additional federal funds to the land-grant colleges and universities, these schools have been developed until today there are 69 such institutions. Of this number 24 are separate colleges; 28 are universities in which work in agriculture, engineering, and home economics forms a part of the work of the institutions; and 17 are institutions of higher learning devoted to education of Negroes.⁴

The development of professional schools is difficult to trace since many of them were established as parts of state or private colleges and universities. Any listing of separate professional schools would be quite incom-

STATE COLLEGES AND UNIVERSITIES

plete. The one outstanding group is the state teachers colleges and normal schools (See NORMAL SCHOOLS and TEACHERS COLLEGES).

The public junior college, which is generally regarded as an upward extension of the secondary school, is distinctly a development of the first quarter of the twentieth century. The oldest public junior college still in existence was established in Joliet, Illinois, in 1902. California enacted a state junior college law in 1907 which authorized boards of education to prescribe courses of study to approximate the work of the first two years of the university course. Similar laws were subsequently enacted in other states.

State junior colleges constitute a group of organizations such as lower divisions in state universities, branch colleges operated in cooperation with state colleges and universities, normal schools accredited for two years, and a number of experimental units in connection with state colleges and universities.³ (See JUNIOR COLLEGE.)

Number, Staff, and Enrollment. The Biennial Survey of Education for 1937-38 gives statistics for publicly controlled institutions as follows: 138 four-year colleges, universities, and professional schools; 160 teachers colleges; 93 normal schools; and 209 junior colleges. The total of 600 represents practically all of the publicly controlled institutions of higher education in the United States. Compared with the 1090 privately controlled colleges and universities reported in the survey, the public ones comprise about 36 per cent of the total number.¹

The total number of faculty members including administrators, teachers, extension and research workers, and other professional personnel, but not including clerical and custodial help, equated on a full-time basis, for the 600 publicly controlled institutions was 58,490, of whom 40,621 were men and 17,869 were women. Resident institutions claimed the service of 46,641 persons; the remainder were engaged in extension work, research, etc.

The total resident college enrollment during the regular session 1937-38 was 689,483,

of whom 402,902 were men and 286,581 were women. About 57 per cent of all college students were enrolled in the publicly controlled institutions. In addition to the enrollment in the regular session, there were 262,012 students enrolled in the summer session of 1937, of whom 96,731 were men and 165,281 were women. Approximately 52 per cent of the undergraduate students enrolled in regular sessions were in professional schools and 48 per cent in the arts and sciences. Approximately 95 per cent of the students are undergraduates and 5 per cent, graduates.¹

Financial Support. Approximately one-half of the income for maintenance of publicly controlled colleges and universities was derived from state governments. The ten per cent of the total income that came from the Federal government was largely from appropriation made to the land-grant colleges and universities, and the 8 per cent of the total income that was derived from local governments represents local support for municipal and junior colleges. Student fees comprised approximately 18 per cent of the income. Table I shows the amount and percentages of income from various sources for 586 publicly controlled colleges and universities in 1937-38.¹

TABLE I
*Income of Publicly Controlled Colleges
and Universities*

Source	Amount	Percentage
Income for Educational and general purposes:		
Student fees	\$ 46,961,517	17.9
Endowment earnings ..	5,931,479	2.3
Federal government ..	27,202,464	10.4
State government	133,448,299	50.9
Local government	21,894,104	8.3
Private gifts and grants	4,535,238	1.7
Sales and services, related activities	16,941,320	6.5
Miscellaneous	5,321,792	2.0
Total	\$262,236,213	100.0
Receipts for addition to physical plant:	\$ 39,511,416	

Table II shows the expenditures for various items in the 586 publicly supported colleges and universities.¹

STATE DEPARTMENT OF EDUCATION

TABLE II
*Expenditures of Publicly Controlled Colleges
and Universities*

Item	Amount	Percentage
Educational and general purposes: (Except extension)		
Administration and general expense ...	\$ 19,535,504	9.4
Resident instruction ..	120,462,164	57.9
Related activities	13,749,127	6.6
Organized research ..	17,961,381	8.6
Libraries	7,892,422	3.8
Plant operation and maintenance	28,619,035	13.7
Sub-Total	\$208,219,633	100.0
Extension:	30,686,654	
Total	\$238,906,287	
Capital outlay:	40,926,474	

W.C.R.

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STATE DEPARTMENT OF EDUCATION. Any specific statement descriptive of state departments of education in the various states is difficult because of the lack of uniformity in the legal provisions and terminology used in designating the department. All states have some agency which may be described as a state department of education and which consists essentially of a staff of assistants to the chief educational officer of the state.

Functions. In theory, the state department of education exercises some six functions as follows: general supervision of the school systems of the state; assistance to the local school units; coordination of educational activities and enterprise; appraisal of the effectiveness of the school program; conduct of research; and advice to the governor and the legislature on educational legislation.¹

In addition to these major functions, state departments of education carry on a wide

range of specific administrative and supervisory functions, some of the more important of which are: supervision of vocational education, supervision of elementary and secondary schools; certification of teachers; approval of school building plans; provision for library service; vocational rehabilitation; rural school supervision; construction of courses of study; making school surveys; and improvement of instruction.

Organization. The organization of state departments of education varies greatly among states and depends largely upon the size of the staff and the functions it undertakes.

In 1936, one state had fewer than ten members on its state department staff, whereas ten states had sixty-one or more. There is a tendency to organize state departments of education on the basis of the major functions which they perform. An example of such a functional organization is that of the state of Maryland in which there are fourteen departments, each of which is headed by a supervisor or director. Some of these departments are as follows: supervisor of physical education; supervisor of vocational rehabilitation, special education and attendance; supervisor of agriculture, part time; home economics supervisor; director of vocational education and supervisor of industrial education; supervisor of high schools; supervisor of elementary education; assistant superintendent in charge of elementary education; supervisor of Negro schools; credential secretary and office manager; financial secretary; consultant architect.¹ State departments should be so organized that there is some person or agency equipped to assist the schools in any type of problem that may arise.

State superintendent. The chief state school officer, or state superintendent, heads the state department of education and serves as its executive officer. All states in the Union provide for such an officer. The office of state superintendent is provided by law and may be more or less closely associated with the state board of education. In thirty-two states this officer is elected by popular vote, in eight states he is appointed by the state board of education and in eight states he is appointed by the governor. There is quite general agreement among school administrators that the state superintendent should be removed from partisan politics and should be

STATE EXAMINATIONS

selected and appointed by the state board of education in the same manner as city superintendents are appointed.

In states that elect state superintendents by popular vote the most frequent length of term is four years. Fourteen of the states have terms from one to two years and seven have possible terms of more than four years. In those states in which the officer is appointed, he may serve, in some cases, for an indefinite term.

The duties of the state superintendent vary greatly according to the statutory provisions of the particular states. In some states he has general supervision of the schools but has relatively few specifically delegated administrative and supervisory responsibilities, whereas in other states his duties are more numerous and more definitely defined. (See also BOARD OF EDUCATION, STATE; STATE SYSTEMS OF EDUCATION.) W.C.R.

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1. W. D. COCKING and C. H. GILMORE, "Organization and Administration of Public Education." *Staff Study*, No. 2 (The Advisory Committee on Education, Washington, D. C., 1938).

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3. A. B. MOEHLMAN, *School Administration* (Houghton Mifflin Co., Boston, 1940), Ch. 27.

STATE EXAMINATIONS. A study of state-wide examinations reveals a wide divergence of practices in elementary and secondary schools. An attempt to classify examination practices has been made in studies carried on by the Office of Education. Descriptions of the practices in the various states are also given in order to show how examinations are constructed, administered, and used.

Elementary School Examinations. Elementary school examinations on a state-wide basis are usually graduation or leaving examinations; those given at the close of the work of the eighth grade. Eleven states have local freedom in the matter of examinations; sixteen states have county dominance, or examinations given in some or all of the counties under the initiative and direction of the county superintendent; and twenty-one states have state controlled or state dominated examination systems.¹

The types of examinations used in state testing programs may be of four types: locally constructed non-standardized, locally con-

structed partially standardized, nationally standardized achievement tests, and nationally standardized general mental ability tests.¹ (See STANDARDIZED TESTS.) Examinations are usually administered locally, scored by state or county agencies, and the results used for marking, or promotion to high school.

High School Examinations. Although state examinations in some form have been in use for sixty years or more, the modern conception of cooperative testing is of relatively recent origin. This conception of testing over a wider area than the local school system has grown in popularity since it affords a basis of comparison of achievement with comparable schools. It is also recognized that cooperative testing in states or regions provides a better basis for comparison of schools than do national norms because of the regional differences that exist among schools. (See also NORMS.)

In 1933 there were sixteen states that had developed state-wide testing programs and two states that had state testing service for non-accredited high schools. A number of different types of testing programs are maintained on a state-wide basis. Montana, Colorado, Kansas, Iowa, Indiana, and Ohio maintain their own state programs and promote individual and school competition. Programs in Michigan and New Hampshire are maintained as services to schools without emphasizing competition. The programs in North Dakota and Texas are for non-accredited high schools. Other states, including Minnesota, North Carolina, and Wisconsin, have developed programs of general scholastic aptitude testing, largely for the benefit of cooperating colleges and universities. Part of the Ohio program is also of this character. The programs in Maine, New York, Georgia, Alabama, and in part that in Pennsylvania, have been directed toward the supervision of high school instruction.²

The general purposes of state-wide testing programs may be stated as the following: motivation, emphasis on reasoning, college entrance, guidance, supervision, and research. The tests for the high school testing programs are carefully constructed by states and national agencies. They are provided in several forms.² (See also REGENTS EXAMINATION.) W.C.R.

STATE SYSTEMS OF EDUCATION

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STATE SYSTEMS OF EDUCATION.

By virtue of the tenth amendment to the Constitution of the United States, there is reserved to each state the right and the responsibility to organize its own system of public education. Because of this individual authority there developed from the beginning a wide diversity of practices and policies. In more recent years there has come about an increasing similarity in general practices, though they still differ in many aspects of administrative practice and finance.

The system of education in a majority of states had its official origin in the appointment or election of a state school officer, known by some such title as Superintendent of Public Instruction or Superintendent of Schools. He usually took over the work, mostly clerical in nature, previously performed by some other state officer.

While the responsibility of a state for the education of its youth is made clear in most state constitutions, or by legislative act, much controversy has resulted in the exercise of this responsibility, particularly in the matter of state vs. local control of schools. Doubtless this was occasioned often by the fact that communities early developed their schools through local financial support prior to the time that state superintendents' offices came into effective being.

The general trend toward strengthening the power of the executive branch of the state government has resulted in a concomitant growth of increasing authority and control of state departments of education over school policies and procedures. Numerous powers, formerly exercised by local school authorities, have now been taken over in different degrees by the various state officials. Among these powers are: (1) certification of teachers, supervisors, superintendents, and special agents of the schools such as school psychologists, visiting teachers, school counselors, etc.; (2) accrediting of various local schools within the state—secondary schools must meet standards

established by the state in order to be accredited institutions; (3) approval of school building plans before the locality can proceed with construction; (4) enforcement of compulsory school attendance requirements as specified by law, instead of relying solely upon the locality for the enforcement of these regulations; (5) supervision of instruction; and (6) provision for courses of study that must become the basis of the locality's school program.

This tendency in the direction of state control of education has been accompanied by a movement for wider state support of education, which is but a phase of the whole movement in the direction of a greater exercise of state control over education. It is axiomatic in the field of school finance that local communities are most unequal in their ability to support educational programs for the development of their peoples. If therefore, the state is to demand of its local communities that certain standards be met, it becomes the obvious obligation of the state to come to the financial support of those communities unable to meet these demands. (See SUPPORT OF EDUCATION.)

Certain general trends seem to be emerging in the administration of state systems of education, as, for example, (1) the demand for a nonpolitical, strong state board of education, (2) the tendency to have the state board of education take over educational functions previously administered by separate boards (e.g., vocational education), (3) a greater participation by the state in the financing of local schools, (4) the consolidation of smaller local school districts, and (5) a greater measure of professional leadership emanating from the state departments of education.

In most of the states there exist separate boards for the administration of public elementary and secondary education, and for the administration of public higher educational institutions. In only a few states is the general administration of public schools and higher schools vested in one board. In fewer states still is there found a single board for the administration of all higher educational institutions.

In practically all states there are local boards whose function it is to administer the school policies of the local area. Each of

STATE SYSTEMS OF EDUCATION

these local and state boards—elective, appointive, or ex-officio—is charged, by legislative enactment generally, with certain duties and responsibilities which vary greatly among the different states and even within the same state.

Characteristic differences in state systems of education include such factors as: (1) the varying plans for financing schools, involving the relative contribution made by the state, the local district, and intermediary units, as the county, township, parish, etc.; (2) the relative effectiveness of the over-all administrative and supervisory function of the office of the chief state school officer and his departmental staff; (3) the type and number of boards of education and the relative legal authority and responsibility carried by each, both within a state and between states; and (4) the type of school district organization, whether primarily on a local district basis, on a state basis, or built upon such intermediary-size units as the county and similar areas within a state.

Characteristic similarities in state systems of education include: (1) customarily, some type of state board of education that possesses general jurisdiction over public schools within the state; (2) a chief state school officer, either elected or appointed, who serves in the general capacity of executive officer of the board in exercising professional leadership as regards the public school program with the aid of his staff which is usually organized on a functional basis; (3) local area public school boards of education, elected or appointed, which function in a somewhat similar capacity in most states in the establishment of local school policies; and (4) a fairly common division of the school program into elementary, secondary, and higher education, though the number of years in the elementary school program varies somewhat, particularly in the South where a number of states operate a seven-year program.

The conclusion is somewhat inevitable that there is no national system of education in the United States but rather some forty-eight different state systems, with certain similarities and with rather widely divergent differences.

There are many ways in which private school officials cooperate with public agencies and their representatives in promoting the

common welfare of children in the state. For instance, statistical information is supplied to state school officers, educational campaigns are organized to promote child health, attendance regulations are enforced, safety regulations and the requirements of the state building code are observed, and drives for special purposes are carried on during designated periods.

Private elementary schools and secondary schools are subject to certain legislative requirements, most of which also affect public educational institutions. Examples are the compulsory school law; the teaching of American history, civics or citizenship, and the Constitution; the use of the English language; salute to the flag; the loyalty oath; fire drills; length of school year and instruction in hygiene or fire prevention. Lischka's *Private Schools and State Laws* lists the states (number indicated in parentheses) that have laws and constitutional provisions affecting private education: compulsory attendance (48); inspection and supervision (23); general curriculum (29); teaching the Constitution, civics, and patriotism (24); English as the language of instruction (29); qualifications of teachers (11); reports (27); medical inspection (5). Teaching certificates are required in four states: Alabama, South Dakota, Michigan and Nebraska. A certain degree of supervision is exercised over private schools by state accrediting systems covering colleges and secondary schools. Official approval is granted on the basis of ability to satisfy such standards as training and experience of faculty, library and laboratory facilities, curricula, plant, etc. New York requires private elementary and secondary school students to take the Regents' examinations in basic subjects. The private school teachers are granted the privilege of administering and grading the examinations, subject to review by the State Department of Education. Gabel says: "In the past, State supervision of private schools on the lower level has been at a minimum, but the tendency towards increasing control is noticeable and has the approval of many public school educators."

A.O.H. and R.J.M.

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STATISTICAL INFERENCE — STEALING

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STATISTICAL INFERENCE. When statistics are computed which have as their purpose a description of a sample, such as means or standard deviations or coefficients of correlation, no inference is involved because the generalizations do not go at all beyond the data of the sample. But frequently we wish more than a description of a sample; we wish to estimate from the data of the sample the standard deviation or the coefficient of correlation or other parameter of the population from which the sample was drawn; or we wish to infer characteristics of the distribution of statistics from samples, such as the standard error of the mean, from data within the single sample in hand, or to estimate other relationships. In all of these cases we generalize beyond our data—we infer. R. A. Fisher and his disciples have recently given much attention to the method of determining statistics that are most consistent and efficient for purposes of statistical inference.

C.C.P.

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R. A. FISHER, *Statistical Methods for Research Workers* (Oliver and Boyd, London, 1938).

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STEALING. Stealing ranks high in the list of juvenile offenses, being the most frequent offense for boys. Its seriousness may vary from petty pilfering to burglary and armed robbery; it may be occasional or habitual; and it may be committed by an individual or a gang.

Until the age of three the child has difficulty in distinguishing between what belongs to him and what belongs to others. With adequate training and guidance, however, most children should have definite ideas of property rights by the time they enter school. Nevertheless, some may not develop this understanding until later, and these often cause many problems in school.

Since honesty is an acquired, not an inherited characteristic, the reasons for stealing are many and varied—home training may be poor, or, in families low on the economic scale, stealing may be an accepted method of supplementing income. The child who sees other children with toys and spending money he lacks may steal to procure them. The diabetic youngster may steal to buy the candy he craves but is forbidden to eat. The child who feels inadequate, not liked by other children, not secure in his acceptance by others, may steal in order to buy his way into a group, hoping in that way to secure acceptance, gang approval, and some attention. Of major significance is theft as a manifestation of a neurotic disturbance. It may be one of the devices used by an emotionally upset child to ease his guilt because of sex phantasies, masturbation, or similar guilt producing situations. Mental conflict may lead a child to compulsive stealing, which causes him great distress but which he is unable to control.

Undoubtedly, the most important factor in handling juvenile stealing is to determine the motive behind it and then to vary the treatment accordingly. Since an appreciation of property rights is basic to honest behavior, it is essential that the child develop this appreciation as early as possible. This may be done by giving him certain possessions for which he is to be responsible and over which he has jurisdiction, with definite places where they are to be kept. Allowances, opportunities

to earn money, or both should be provided if possible, so that the child will not be forced to resort to stealing to satisfy his wants. If stealing is used as a defense mechanism, the reasons for the child's sense of inferiority must be ascertained and he must be given legitimate opportunities to achieve success and satisfaction. Care should be taken to see that stealing always turns out to the child's disadvantage without humiliating him. Parents and teachers should recognize the problem frankly, deal with it objectively rather than emotionally, and should not remind the child constantly of his past mistakes. The child whose stealing appears to be on a neurotic basis should be referred to a psychiatrist or child guidance clinic for appropriate study and treatment. (See JUVENILE DELINQUENT; MENTAL HYGIENE.) R.V.M.

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STEREOGRAPH — See AUDIO-VISUAL AIDS.

STORY TELLING. Story telling is one of the most ancient of human arts, antedating writing by thousands of years. Although much of its function has been taken over by books and more recently by the motion picture and radio, it remains useful and worthy of cultivation.

Listening to good stories is an important aid to the emotional, intellectual, and linguistic development of the young child. From it the child may acquire new ideas and vocabulary, absorb correct patterns of speech, and develop ability to pay continued attention and to follow a related sequence of events. These are important in the development of language ability and, more specifically, of readiness for reading. The telling of stories has a definite place in the activities of the nursery school, kindergarten, and primary grades.

Good technique in story telling starts with the ability to select a story suitable to the audience and the occasion, and therefore implies an understanding of children and a

good background in children's literature (*q.v.*). The preparation of a story involves complete familiarity with the events and a visualization of the situations, so that they may be vividly described in one's own words; memorization should usually be avoided. Good voice production, naturalness of expression, and the proper timing and placement of emphasis are important. A.J.H.

Reference.

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STREPHOSYMBOLIA. Strephosymbolia, meaning literally "twisted symbols," is a term coined by Dr. Samuel T. Orton to describe his conception of reading disability. He describes it as characterized at the outset by a marked tendency to make errors of the reversal type and by confused memory for word and letter forms. According to Orton it is caused by an absence of clear-cut dominance of one hemisphere of the brain over the other. The correctness of the theory, which has stimulated much research, is still a controversial issue. (See REVERSALS and READING DISABILITY.) A.J.H.

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STRUCTURAL PSYCHOLOGY — See PSYCHOLOGY, SCHOOLS OF.

STUDENT ACCOUNTING—See PUPIL ACCOUNTING.

STUDENT COUNCIL. The basic idea of the student council—student participation in control—is not new; it was found in early monitorial and Jesuit schools and was endorsed by such educators as Plato, Vittorino da Feltre, Rousseau, Pestalozzi, and Froebel. Some of the early exponents used it for economy in handling large groups of pupils, but almost all of them recognized its educational possibilities.

The main purpose of the student council is to give the students—both as electors and officials—some practical training in democratic living through the setting of a miniature democracy. Through its programs of constructive activities in helping to organize, and articulate extracurricular activities (*q.v.*), the council can have considerable influence on the school as a whole.

STUDENT COURT — STUDENT LOAD

There is actually no such thing as "student self-government" in a public elementary or secondary school because students are not officially charged with the responsibility of the school; they lack the experience and judgment that must accompany legislative, executive, and judicial power; and students are minors. However, students can and should participate in control.

Successful participation rests upon the following basic principles: (1) the school must feel the need for council organization; (2) the council should be introduced and developed gradually; (3) a careful study of purposes, plans, local needs, etc., should precede any attempt at organization; (4) the school as a whole, both teachers and students, should be adequately represented; (5) every student in the school should feel his representation; (6) the council should have definite responsibilities and powers; (7) the council should be large enough to represent the entire school fairly, but small enough for efficient organization; and (8) the head of the school should retain veto power.

Representation on the council may be on the basis of (1) specialized interests—clubs, activities, etc., (2) student body generally—classes, home rooms, or at large, (3) school, alumni, and board of education, and (4) academic, citizenship, honor, or other awards, or recognition. Obviously the second plan, which represents all of the students, is more nearly democratic and is the form most commonly found. In smaller schools the representatives are usually elected from classes; in larger schools, from home rooms.

Student councils are organized internally in an almost unbelievable array of forms varying from the simplest form of single committee to the most complex imitation of national government with its legislative, executive, and judicial departments, and their many sub-divisions. Some councils imitate their state organizations while others copy the local municipal organization with its various departments. Still other forms have separate congresses or councils for each grade and a top council elected from these. And there are many other types.

To get things done the simpler organizational forms are preferable. A complicated type easily brings confusion, and effort is likely to be spent in keeping the organization

going instead of in getting things done. A simple form of council and sub-committees seems to be the most suitable for the average school. A formal installation of the council in the school assembly brings a dramatic appeal and adds to the importance and dignity of this body.

The student court, which is found in some schools, formally tries delinquent students. Administrators often doubt the value of these courts. Student courts tend to interpret misconduct as an offense to be punished and rarely as a symptom of maladjustment that needs cure instead.

A simple form of constitution which sets forth the purposes, powers, limitations, and organization of the council is necessary. It can be worked out gradually and finally be formally adopted by the school. It may then be published in a small booklet and distributed to the school. By-laws for the council itself are also necessary.

The general scope of the council's work is suggested by such activities as chartering and correlating school organizations, organizing and supervising social functions of all types, handling student employment and loan funds, and welcoming new students and visitors. (See SELF-GOVERNMENT.) H.C.M.

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STUDENT COURT — See STUDENT COUNCIL.

STUDENT LOAD. The student load refers to the amount of work carried by the individual student during a particular term. In the American secondary school the student load is customarily defined in terms of the number of courses or subjects carried. The accrediting (*q.v.*) agencies usually specify that four unit courses, or the equivalent, shall

constitute the normal amount of work to be carried by the average pupil.

In the universities and colleges the student load is stated in terms of semester hours or quarter hours. Under a semester system a student ordinarily will carry about one-eighth of the graduation requirement. This may range from fifteen or sixteen semester hours in colleges of liberal arts to as many as eighteen or twenty in professional curricula. Under the quarter system the normal load approximates one-twelfth of the graduation requirement. (See CREDIT.) L.M.C.

STUDENT PERSONNEL WORK—See GUIDANCE

STUDENT RECRUITING. Student recruiting refers to the means used by schools, colleges, and universities to attract or to persuade students to enroll or to seek admission to their institutions. Students recruiting is a major problem of private schools, regardless of educational level or age group served, and of public colleges, normal schools or teachers' colleges, and universities, where the enrollment is not assured through compulsory attendance laws.

Since a private school or private institution of higher learning derives much of its revenue from the tuition fees paid by students, it is essential that the student body be large enough to assure enough revenue which, together with the income, if any, from other sources will be sufficient to cover the operating costs of the institution.

A public institution of higher education, while receiving some income from fees paid by its students, depends mainly on appropriations from public funds. These appropriations are usually determined by the needs of the institution as expressed through the number of students enrolled. To be assured of appropriations sufficient to finance its program, the institution therefore must have as large a student body as can be accommodated. In an institution in which the student body is not limited by a definite quota of students established by some administrative or legislative body, it sometimes becomes necessary to increase enrollment in order to secure a larger appropriation to cover the cost of some necessary or desirable change or expansion.

Private schools of all levels and types, as well as public institutions of higher learning,

through their student recruiting program, aim to persuade more students to seek admission than they will permit to enroll. The realization of this aim enables an institution to set certain requirements for admission. As the number of students seeking admission increases beyond the number that can or will be admitted, the higher or more exacting the entrance requirements can be, or the more choice the institution can have in the selection of its student body.

A program of student recruiting is in reality a public relations program directed mainly to (1) parents, relatives, and friends of prospective students, (2) the present student body, and (3) the prospective students themselves. While it is necessary that the program be effective with all three groups, regardless of the type or educational level of the institution, the older the age group served by the institution, the more effective it is to direct the recruiting program to the prospective students themselves; while the younger the age group served, the more effective it is to direct the program to the prospective students' parents, relatives and friends.

Among those activities of the public relations program of a school or college that are considered to be effective in securing students are (1) specially prepared bulletins sent to parents or to prospective students describing the curriculum, the social and recreational activities of the students, the provision for health and medical care of students, the equipment and housing facilities, and the qualifications of the instructional staff (These bulletins may be written to appeal to either the prospective student or his parents, but in either case the content is selected to appeal to the definite interests of the person for whom the bulletin is intended); (2) motion pictures of some of the activities in which the students engage; (3) personal interviews by a representative of the school or college with the prospective student or his parents; (4) "open-house" day at the school or college, to which the prospective student and his parents are invited. The program of the day is selected to appeal to both the prospective student and his parents. The public relations program of colleges also includes (1) radio broadcasts of productions of student dramatic or music groups or programs describing the various activities of the college; (2) a field

STUDENT TEACHING

representative to travel to high schools to talk to the entire student body or to confer with smaller groups, especially with members of the graduating class; (3) meetings of local alumni associations, to which prospective students are invited; (4) programs of music or dramatics by student groups sent to high schools, churches, and meetings of clubs and service organizations; (5) the activities of the sororities and fraternities designed to recruit prospective members; and (6) high school exhibitions and contests in dramatics, athletics, and music on the college campus, to which high school students are invited.

W.V.N.

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STUDENT TEACHING. *Student teaching* refers to the supervised teaching performed by prospective teachers as part of their professional training. Because the term, student teaching, conveys the idea of more than mere practice, it is often preferred to the older expression of *practice teaching*. The activities comprising student teaching range from the mere observation of an experienced teacher at work to the student's participation in both curricular and extracurricular activities. Student teachers are usually assigned to a specific class for a stated number of hours each week for a quarter, a semester, or longer, depending upon college and state certification requirements. A well-planned program of student teaching offers more than mere practice in classroom teaching. It covers the whole range of a teacher's activities, both in and out of school, and offers the student teacher first-hand experience in guiding extracurricular activities and in developing community relationships.

The student teacher usually receives help from the *critic teacher* (also called *supervisory teacher* or *master teacher*) to whose class the student is assigned, and from the supervisory instructors from the college or teacher training staff. The college supervisors are usually members of the department of education or subject matter teachers in the student's field of specialization. Where the student teaching is done in a laboratory school there is ordinarily a close relationship

between the school supervisors and the college supervisors.

Student teaching is an important part of the pre-service phase of teacher education, for it enables the student to test his understanding of educational principles by applying them to practical situations and it helps him to evaluate school practices in terms of the educational principles he has been studying. Student teaching thus provides an opportunity for integrating the prospective teacher's preparation in subject matter fields with his preparation in the foundations of education (philosophical, historical, psychological, and social).

There is no general agreement as to whether student teaching should appear early in the sequence of professional studies or whether it should be the culminating activity, not to be engaged in until the student is a senior at college or even a graduate student. Those who favor student teaching as an early experience (that is, after the student has had some, but not many, of his professional courses in teacher training), are impressed (1) by the way in which student teaching experience provides a background that gives meaning to the professional courses the student takes subsequently, (2) by its value in enabling students to see fairly early what a teacher's opportunities and responsibilities are, thus helping him to decide whether teaching is the type of career in which he will find personal and professional satisfaction, and (3) by the manner in which student teaching reveals the student's shortcomings and thus encourages an early start on remedial work. On the other hand, student teaching is also appropriate as a culminating course because (1) only a thoroughly qualified student can profit from the richness of the opportunities presented by student teaching, (2) an immature student with meagre professional background may be tempted to do little more than imitate the procedures followed by the supervisory teacher, and (3) it is unfair to school children to expose them to inadequately prepared student teachers.

The importance currently attached to student teaching has been challenged by those who believe it takes a disproportionately large share of the student's time and energy. These critics assert that the student is often plunged into a teaching situation for which he is not ready and that he flounders so badly

that both he and his pupils are hurt by the experience. Objection has been raised, also, to so narrow a conception of supervision that the student is forced merely to ape the practices followed by the supervisor or critic teacher. The value of student teaching is limited, too, when it is not brought into close relationship with the rest of the pre-service program of teacher education.

The tendency today is to lengthen the period of student teaching required for a degree, to broaden the range of teaching experiences in which the student participates, and to develop closer cooperation between the school and the college. (See *TEACHER EDUCATION*.)

R.F.B.

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STUDENTS' LOAN FUNDS—See LOAN FUNDS.

STUDY. Teaching has been defined as the guidance of learning. When the child enters a classroom the teacher usually assumes the responsibility of organizing specific learning situations in which the pupil is guided to respond most effectively. If one can judge from the frequent failure of pupils to develop efficient study habits, it would appear that many teachers either cannot teach pupils how to study, or they believe that pupils are able to develop effective methods of work without any teacher direction or guidance. Repeated investigations of the study habits of students, however, have demonstrated that there is little foundation for such a belief. Although the superior pupil occasionally may adopt fairly satisfactory techniques of study, one may be certain that only a small proportion will utilize those devices that have proved to be most effective. In fact, the pupil of superior ability whose progress is unsatisfactory may be hindered simply because he is using poor methods of study which, without adequate guidance by the teacher, will continue to stand in his way. The pupil who is below average, moreover, rarely will adopt the best available techniques without considerable

teacher assistance. It seems obvious that the classroom teacher must present to all her pupils the techniques and devices which experiment and experience have proved to be most effective, must aid her students in choosing those techniques which give the best results for them, and must inculcate the habit of using these procedures.

To assure provision for teaching pupils how to study, schools have devised a number of administrative plans. While individual schools have made variations to fit their special needs, the following plans are the most commonly used: (1) the divided-period plan, which normally consists of a long period of fifty or sixty minutes divided into two parts, usually equal in length, one for study and the other for recitation; (2) the flexible divided-period plan, which is like the first in operation except that the length of the periods is left to the teacher's discretion; (3) the flexible supervised-study period, which provides supervised study periods from day to day, whenever they are needed, as part of a larger unit of work; (4) the library or study-hall plan, which provides for supervised study under the direction of a teacher or teachers; (5) the extra-period or conference plan, which provides an extra daily period or periods during which pupils are given needed help or are supervised in their study by teachers in certain rooms; (6) the variable-period plan, which provides for using different periods on different days of the week for supervised study in all classes to teach pupils how to study, also to provide practice in studying; for example, English classes may devote Mondays to a supervised study lesson instead of to the usual classwork. language classes have their supervised study lessons on Tuesdays, etc. The variable-period plan is used in some schools as a means of reducing the students' burden of homework assignments, since the supervised study periods, sometimes called "Unprepared Day," ordinarily require no advance preparation of assignments. Some schools have provided a special course or a series of lessons to teach pupils how to study; these have been used with varying degrees of success. Since study procedures must be adapted to the type of work to be done, many educators advocate that the classroom teacher should assume the responsibility of teaching students how to study. On the other hand, if this problem is

STUDY

left entirely to the teachers, little may be done unless the school initiates a coordinated plan.

In present-day practice most schools recognize the necessity of teaching pupils how to study as a part of their regular classwork. This may be facilitated by the correct use of good assignments (*q.v.*) which grow out of the work in class, are adapted to the student's abilities, and are properly motivated. The assignment should help each student to understand not only what he is expected to accomplish but also which procedures he should employ. If the student's work is then evaluated by teacher and pupil from the point of view of adequacy of the study procedures which were used, the teacher can help the student correct many of the causes of bad study habits.

What are the most valuable study techniques? The usual procedure which is adopted in the attempt to answer this question involves the comparison of two groups of students—one consisting of students who have obtained excellent grades, and the other consisting of students whose academic success has been poor. Interview and observational data centering about the study habits of the two groups are then assembled, and the percentages of the good and poor students who utilize a particular technique are determined. Those devices that are used by a large proportion of superior students and a small proportion of inferior pupils may then be considered most valuable in promoting learning.

There is grave danger, however, in accepting the results of such investigations at their face value. It should be noted that comparisons of the type described above introduce important complicating factors—the student who obtains high grades is generally more intelligent and, in all probability, more highly motivated than the student whose academic standing is low. The study habits of the superior students, then, cannot be considered the sole casual factors operating in the situation, nor can it be said that the techniques used by superior students would be equally appropriate for the inferior student. Each student must be considered as an individual, and remedial work must be undertaken on an individual basis.

Although the improvement of study techniques is largely a matter of the guidance of the individual student, the efficiency with

which most pupils study can be improved. Some schools report that study procedures have been improved when students are familiarized with the suggestions which have been offered by educational psychologists. Typical of such suggestions are:

1. Keep in good physical condition. Students who find schoolwork difficult frequently are found to have remediable physical handicaps.
2. Make certain that external conditions of light, temperature, quiet, etc. are favorable to study. Experimental evidence indicates that such factors, if uncontrolled, lead to physical fatigue and to lowered efficiency in studying.
3. Plan your day's work in advance, and maintain the schedule which you set up. In so far as possible, study at the same time and in the same place every day.
4. Skim material to be read before you read it in detail. Such a preliminary survey will assist you in following the writer's general plan, and will make the material more meaningful.
5. Special attention should be given to diagrams, tables, and charts which appear in your reading, since they constitute the author's means of summarizing his data. Cultivate the technique of making your own charts and diagrams to summarize what you read.
6. Remember that it is worthwhile to interrupt the continuity of your reading in order to look up technical terms. Failure to do so will result in lack of understanding.
7. Provide for the recitation of what you have read. Recitation makes for better learning, and is a good way of becoming independent of the text.
8. Take notes in outline form, both on readings and classwork. Do not try to put down everything you read or hear—be selective. Use your own wording—do not try to make your notes a verbatim record.
9. Develop some method of organizing your notes so that you can easily locate materials when you want them.
10. Review your work systematically and periodically. Do not save all your reviewing for the day before examination. Cramming is a poor study technique.

Even if every one of the suggestions noted above is helpful and practicable, students will not develop good study habits merely by reading a manual in which the above points are elaborated at great length, or by participating in extended class discussion of good and poor techniques. One of the major weaknesses of most programs concerned with teaching pupils how to study is that they emphasize the student's knowledge of good study procedures rather than his habitual use of them. If the student knows how to study but is so far from being convinced of the value of correct study procedures that he lapses into his ineffective study habits when not under the teacher's direct supervision, little lasting improvement can be expected. Both the inferior and superior student will profit more from guidance in practice situations, in which problems involving study procedures are presented and worked through in the way that such procedures must be used when the pupil is studying alone. It is important that students know how to study, but it is even more important that the use of such procedures becomes habitual—and the process of habituation necessitates ample provision for practice.

The ability to study involves a number of specific abilities. Thus a person who knows how to study a mathematics assignment may not be equally efficient when studying social studies. Because so much of the student's ability to study hinges on his ability to use printed materials efficiently, the teaching of reading usually includes the development of some skills that are important in developing the ability to study. Typical of such reading skills is the student's ability in work-type reading and in the use of reference materials.

Reading, Work-Type. Reading, in which the primary aim is a practical one such as obtaining information, is usually described as *work-type reading*. Most pupils need guidance in learning to adapt their reading habits to a variety of purposes for reading and to the adjustments required by different kinds of reading material.

Specific practice in a variety of study skills is, therefore, a regular part of the elementary reading curriculum. Among the more important of these skills are (1) reading to get the central thought or main idea; (2) reading carefully so as to note and remember specific

details; (3) skimming or very rapid reading to locate the answer to a specific question; (4) reading of directions so as to be able to carry them out accurately; (5) reading and interpreting graphs, tables, charts, and maps; (6) utilization of a table of contents or index to locate information; (7) reading of dictionaries, encyclopedias, and other types of reference books; (8) reading to analyze the organization of a selection or topic and to reduce it to a summary or outline; and (9) reading critically to evaluate the author's ideas or to compare different points of view.

Developmental lessons for the improvement of the types of reading described above frequently are given in a separate period of reading instruction. Workbooks and study-type readers containing appropriate kinds of practice exercises are used in many schools. The use of textbooks in content subjects as material for lessons in reading is also widespread and commendable. (See *READING, METHODS OF TEACHING*.)

Reference Reading. The modern curriculum, with its emphasis upon the organization of subject matter in the form of problems and upon a rich program of collateral and supplementary reading, requires that reference books be available and that pupils receive training in how to use them. Basic types of reference works include dictionaries, encyclopedias, atlases, almanacs, bibliographic sources such as the *Readers' Guide to Periodical Literature*, and special book lists. Elementary reference skills that should be taught include facility in locating items that are arranged in alphabetical order, and in using an index, a table of contents, and a card catalogue.

The importance of reference reading in "elementary research" in the Activity Program (*q.v.*) and in English and the social studies on the secondary school level points to the necessity for the teacher's recognition of the many skills that must be developed if students are to gain as much as possible from their reference reading.

Typical of the skills included even in elementary research are the following:

1. Analysis of the problem or unit or segment selected by the group or individual into a series of questions or topics.
2. Construction of a "gross" bibliography

STUDY CLUBS — SUBLIMATION

of available sources (texts, magazines, reference books).

3. Location of the reference work containing a likely answer to the definite question to be followed up.

4. Resourcefulness in examining various topics listed in the index. This ability grows out of step 1 (and the lack of it spells failure on the part of most pupils in the intelligent use of the index, especially if the index is not analytical).

5. Resisting distraction by interesting but irrelevant material in the context.

6. Keeping in mind the question to be answered.

7. Evaluating the usefulness of the information given.

8. Distinguishing between facts and illustrative or immaterial anecdotes.

9. Applying the host of reading skills previously taught.

10. Taking notes intelligently.

11. Persisting until an answer to the question is found.

A similar analysis may be made of the skills involved in reference reading in secondary schools and colleges. Some of the difficulties which students at all levels experience in their independent study arise from the fact that their teachers assume that students have mastered skills which have never been analyzed or developed in class.

One of the shortcomings of most programs for improving study habits is that the problem is viewed usually as exclusively an intellectual one. Though many pupils do not study effectively because they do not know how to study, other factors may be equally important in reducing the efficiency of study procedures. Thus the student's home facilities may be inadequate for efficient study, his emotional problems may interfere seriously with his ability to study, his attitude toward school may not lead to any desire to study, and his excessive participation in extracurricular activities or the responsibilities of part-time employment may not leave him enough time for study. A complete program for improving the ability to study includes therefore a detailed study of the individual student who has difficulties in studying. J.J. and T.M.R.

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STUDY CLUBS. Any group of individuals who desire to improve their grasp of a field of knowledge and who study individually and meet voluntarily at stated intervals for general discussion constitute a study club. Usually the club is composed of students in high school or college, but clubs have been formed by many groups both in or out of school to study such problems of general interest as radio, current events, contemporary literature, and science. These clubs make it possible for industrious individuals to read widely and then to pool their ideas and findings in general meetings. That attendance is voluntary gives the club members a feeling of freedom as well as affording profitable recreation and worthy use of leisure time.

F.A.B.

STUTTERING — See SPEECH CORRECTION.

SUBJECT AGE—See EDUCATIONAL AGE.

SUBJECT COST—See FINANCE, SCHOOL.

SUBJECT MATTER — See CURRICULUM.

SUBJECT MATTER MEETING—See TEACHERS' MEETING.

SUBJECT UNIT COST—See FINANCE, SCHOOL.

SUBJECTIVE EXAMINATIONS—See ESSAY EXAMINATIONS.

SUBLIMATION. Psychoanalytically, the term *sublimation* is applied to the process of converting sexual (libidinal) drives and energy into acceptable social channels, not obviously sexual in aim. In a less limited sense it can be applied to the redirection of desires and drives which cannot be gratified in their original form without arousing conflicts in the individual. It is a protective device which is essentially sound mentally and is conducive to the promotion of satisfactory emotional adjustments. It is utilized, usually unconsciously, by the adolescent girl who, for

SUBSTITUTE TEACHER — SUPERINTENDENT OF SCHOOLS

example, becomes interested in child care or home nursing, by the boy who becomes absorbed in baseball or football, and by the adult who turns to community welfare services as part of his leisure time activity. (See MENTAL HYGIENE.) G.M.A.

SUBSTITUTE TEACHER. A substitute teacher is one who takes the place of the regular teacher whenever the regular teacher is absent from school. Substitute teachers are generally selected centrally for the school system, and are approved as eligible for substitute service by the superintendent or personnel director. Most cities prescribe the same professional requirements for substitutes as for regular teachers; but at times they find it necessary to waive the requirements of experience, local residence, and marital status, in order to secure an adequate supply of substitutes.

Rating scales are used to measure candidates for substitute teaching as well as those for regular positions. The practice of permitting older pupils to act as substitutes, even for very short periods, is not sanctioned because the difficulties of substitute teaching are as great as or even greater than those of the regular staff.

Students enrolled in teacher-training institutions may gain valuable experience if permitted to do substitute work; but the practice is difficult to administer and is not used widely. Baldwin found that 38 cities out of 61 which had teacher training institutions used the trainees for substitute service. However, they did so only when the critic teacher with whom the student was studying was absent.

The selection of well-qualified substitute teachers is important in view of the facts known concerning the absence of teachers. In a study of 5,260 teachers Kuhlmann reported an average amount of absence of 5.28 days per teacher per year. Baldwin reported the median ratio of regular teachers to substitutes in certain American cities as 6 to 1 in elementary schools, 5 to 1 in junior high, and 4 to 1 in senior high schools. Cooke suggests that the number of substitutes should approximate from 10 to 15 per cent of the number of regular teachers. (See RELIEF TEACHER.)

A.V.O.

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SUBSTITUTION TEST—See OBJECTIVE TESTS AND EXAMINATIONS.

SUNDAY SCHOOLS—See JEWISH EDUCATION; PROTESTANT EDUCATION; RELIGION AND PUBLIC EDUCATION; ROMAN CATHOLIC EDUCATION.

SUPERIMPOSED HIGH SCHOOL DISTRICT—See UNION SCHOOL DISTRICT.

SUPERINTENDENT OF SCHOOLS.

The office of superintendent of schools was established in American cities during the nineteenth century. The cities of Buffalo, New York, and Louisville, Kentucky established the office in 1837, and the city of Philadelphia, one of the last of the large cities to establish the office, created the position in 1883. Although the position has been in existence for more than a century, it was only relatively recently that it developed as an executive and administrative one.

Although the superintendency of schools as a position of educational leadership developed in American cities, it is now widely used to designate the chief officer of county school systems under the county unit plan and state school systems. While there are differences in qualifications, duties, and manner of selection of superintendents in cities, counties, and states, the office is now generally regarded as essentially an executive and administrative one. The term superintendent of schools, as applied to officers of counties functioning as intermediate units, is quite distinct from the first three types mentioned. This discussion is confined to a description of the city superintendent of schools. (See also COUNTY SCHOOL SYSTEM and STATE SYSTEMS OF EDUCATION.)

Duties and Responsibilities. The duties and responsibilities of the early superintendents often lacked clear definition. In some cases this officer acted more in the capacity of a clerk or business manager than as an executive or administrator. The development

SUPERVISED STUDY — SUPERVISION OF INSTRUCTION

of the executive and administrative aspects of the office paralleled the rapid expansion of the public education system and the increased complexity of the organization. In the typical city school system the superintendent is the executive head of both the instructional program and the business aspects. This type of organization may be described as the unitary one. In the cities of over 100,000 population about one-half had this form in 1936. In smaller cities it was more frequent.⁴ The superintendent has general charge of the educational work, selection and in-service training of teachers, the instructional program, business management, school and community relations and the supervision of certain additional educational projects such as adult education. To assist him he usually has one or more assistant superintendents with staffs sufficient to carry on the work of major departments.

Training and Certification. Special training of superintendents of schools is now generally required. In all of the large cities and in many of the smaller ones they are expected to have at least a bachelor's or master's degree, with special training in school administration. It is not at all uncommon to find superintendents in the larger cities with the doctor's degree, with major work in school administration. In 1939 the National Education Association reported that there were thirty-three states that issued special certificates in administration or supervision and in nineteen of the states such certificates were required of all local superintendents.² In addition to the qualifications of training, many states require a certain number of years of successful teaching or administrative experience in order to qualify for the superintendent's certificate.

Method of Selection. The early superintendents of schools were usually chosen from the local system and were persons who had business experience or in some cases were head teachers. Appointment to the position was often made by the city council or other governing body of the city. In recent years it has become generally recognized that the superintendent should be selected and appointed by the board of education. The selection of a local person was an early requirement which placed a restriction upon the type of person who should be secured for the office. Today this restriction has been gener-

ally removed and the board is free to select the most competent person from anywhere in the country. This method of selecting a superintendent of schools has developed through experience over a period of nearly a century.

Tenure of Office. The term of office for which the superintendent of schools is elected is generally one year. In states that have tenure laws the superintendents of schools are generally excluded from the provision of such legislation. In the absence of specific tenure legislation the general practice, especially in the large cities, is toward relatively longer terms. An initial three year term with subsequent five year terms is usually considered desirable practice.

Community Leadership. The position of superintendent of schools is now generally regarded as one of educational leadership in the community. There is a tendency toward placing him in charge of more and more of the educational activities in a community. The practice of placing all the educational activities under one executive officer of the board of education is now generally regarded as desirable.

(See ADMINISTRATION, SCHOOL; SUPERVISION OF INSTRUCTION.)

W.C.R.

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SUPERVISED STUDY—See STUDY.

SUPERVISION OF INSTRUCTION.

The *supervision of instruction* refers to the variety of means used by administrators, supervisors, and teachers themselves to improve the teaching and learning process.

In general the trend in supervision is away from an authoritative inspection of the work of teachers by higher officials and toward a cooperative effort designed to help teachers improve their own philosophy and methods of teaching. When education was expanding rapidly in the 19th century, and when great

numbers of ill-trained teachers were pouring into the schools, superintendents, principals, and other supervisors felt called upon to check thoroughly on the teachers. Even though the profession improved its standards of preservice preparation, the line and staff (See ADMINISTRATION, SCHOOL) conception was maintained generally into the 20th century; in the last decade or two, however, newer conceptions of learning and teaching have led to newer conceptions of supervision as a means of in-service education of teachers.

Supervision was conceived formerly as the inspection by administrators of classroom management as conducted by teachers. Elaborate check lists were developed whereby administrators and supervisors rated teachers in such detailed respects as use of English and effectiveness of drill procedures, while standardized tests were given to pupils as a means of determining how well the teacher was doing his work. The supervisory officer would then tell the teacher how to improve his teaching. Thus, it was the supervisors who conducted curriculum investigations, promulgated new courses of study, selected textbooks, and prepared materials of instruction which were handed over to the teacher for use.

In recent years there has developed a more democratic and cooperative interpretation of supervision in which supervisors and teachers work together on the problems of learning. Supervisors do not intrude so often upon the actual work of the classroom but look upon themselves as consultants to be called on by the teacher when aid is needed and as leaders to stimulate self-direction on the part of teachers through cooperative study groups and individual conferences. The supervisor and the teacher work together on the individual learning and personality problems of pupils, on developing curricular materials and methods, and, in general, on the whole problem of developing an adequate philosophy of education concerning the role of the school in modern society. Supervision today considers the attitudes of teachers as a most important area of concern, and indeed often starts the process of improving instruction by focusing attention upon improving the personality of the teacher himself. The growth of this conception of supervision can be traced in part to the development of the Department of

Supervisors and Directors of Instruction of the National Education Association. Somewhat the same trends are discernible in the supervision of student teaching, where, in a sense, the critic teacher has the role of supervisor and the student teacher has the role that the regular teacher plays in the larger school situation.

This change in the purpose and the spirit of supervision has been reflected in the procedures employed. The isolated inspectional visit, during which the principal or superintendent made an unannounced visit to the classroom and either questioned the pupils himself or sat at the rear of the room observing the teacher at work as a basis for subsequent rating of the teacher's effectiveness, no longer enjoys its former acceptance as the major supervisory activity. When the supervisor visits the classroom, an increasing number of teachers have learned to regard him as a professional consultant whose training and experience should help the teacher improve his own techniques rather than as an itinerant inspector who seeks only a rating. The supervisor's visits to the classroom become a less important part of supervision as other procedures become more prominent. Thus, in many schools, the improvement of instruction is attained in other ways, such as the encouragement of inter-class visitation (*q.v.*), the enlistment of teachers' assistance in the solution of curricular problems by having teachers serve on committees which revise the curriculum and the courses of study, the use of teachers in constructing and applying rating scales to measure teaching effectiveness (See TEACHERS, RATING OF); and the inauguration of teachers workshops (*q.v.*) as means of in-service education. There is, of course, a wide range in the extent to which these changes in supervisory principles and practices have affected the many school systems in the country.

Vertical and Horizontal Organization of Supervision. An educational service is said to be administered or supervised vertically when the authority for the direction of the service throughout the length of the school system (from the kindergarten or first grade through the high school) is centralized in one agency or office. For example, business management, attendance, and health are in almost all cases organized vertically. The supervision of instruction is organized vertically

SUPERVISORY TEACHER — SUPPORT OF EDUCATION

when specialists are responsible for particular subjects throughout all grades of the system. Special supervisors of music, of art, and of physical education are representative of vertical organization.

The organization is said to be horizontal when the service is administered across the entire program of a particular vertical division. A kindergarten-primary supervisor, an elementary principal, or an assistant superintendent in charge of high schools is representative of horizontal organization for supervision and administration.

In actual practice all school systems have some elements of both vertical and horizontal organization. Emphasis on the service or subject and on specialization tends toward vertical organization, while emphasis on age and developmental level of the child, irrespective of the service rendered, tends toward horizontal organization.

Special Supervisor. A special supervisor spends his entire time in the supervision of instruction, as contrasted with the superintendent or principal who divides his time between administrative and supervisory functions. The special supervisor may be responsible for a particular division of the school (elementary supervisor, kindergarten and primary supervisor, etc.) or he may supervise the teaching of a particular subject throughout a school system (art, music, home economics, penmanship, etc.). The special supervisor is presumed to be an expert in the subject matter and methodology of either a division of the school system or a particular subject.

R.F.B. and L.M.C.

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SUPERVISORY TEACHER—See STUDENT TEACHING.

SUPPLEMENTARY READING—See COLLATERAL READING.

SUPPORT OF EDUCATION. The financial support of education in the United States varies with the methods of raising revenue in the several states and also with the type and grade of the schools maintained. Rather than one national plan of school support, there are in reality forty-eight plans of support for the public elementary and secondary schools, and a variety of patterns of support for the institutions of higher education and the special and private schools. National norms or averages give only the overall picture and do not yield much information relative to the support of education in any particular state or of a particular school.

Public elementary and secondary schools. Both from the point of view of the number of pupils served and the amount of money expended, the public elementary and secondary schools constitute the most important group of educational institutions. In all states these schools are supported jointly by the local, state and federal governments, although the proportion of support from the different governments varies greatly. According to figures reported by the United States Office of Education, the largest proportion of school revenue was received from the local governments—cities and districts—and the smallest proportion from the federal government. Table I shows the amount and percentage of school revenue derived from the various governments for public elementary and secondary schools in 1938.²

TABLE I
Income of Public Elementary and
Secondary Schools²

Source	Amount of All Revenue Receipts	Percentage of All Revenue Receipts
Federal Government	\$ 26,535,473	1.2
State Government	655,996,060	29.5
County Government	144,521,394	6.5
Local Government and Subsidies ...	1,395,831,734	62.8
Total	\$2,222,884,661	100.0

Perhaps the most striking feature of the support plans in the forty-eight states is the

SUPPORT OF EDUCATION

wide variation in the proportion derived from the different governments. Delaware had the highest proportion of state aid—92.8 per cent. Nine additional states contributed more than 50 per cent from state sources. These states were: New Mexico, 74.5; North Carolina, 70.7; West Virginia, 57.5; Washington, 56.7; Alabama, 55.5; Georgia, 53.8; Louisiana, 53.6; South Carolina, 52.4; and Florida, 52.1. Thirteen states contributed less than ten per cent of school support from state sources. These were: South Dakota, 9.7; Kansas, 8.6; Illinois, 8.4; Connecticut, 7.3; Rhode Island, 6.4; New Hampshire, 5.9; New Jersey, 4.8; Idaho, 4.6; Montana, 4.0; Iowa, 1.0; Nebraska, 0.9; Oregon, 0.2; and Colorado, 0.2.

Local governments contributed more than 90 per cent in six states as follows: Nebraska, 99.1; Iowa, 95.3; New Hampshire, 94.1; Rhode Island, 93.6; Connecticut, 92.7; and Illinois, 91.5. In only two states did the local units contribute less than ten per cent of school income. These were: North Carolina, 8.2; and Delaware, 7.2. In West Virginia the county is the smallest unit from which school revenue is derived.

In thirty-seven states the county serves as a unit from which school support is derived, the proportions varying from 0.1 per cent in Michigan to 50.1 per cent in Tennessee.²

From 1930 to 1938, state aid increased from 16.9 per cent to 29.5 per cent of school revenue receipts. This increase was accompanied by a corresponding decrease in local and county support. The former dropped from 72.7 per cent to 63.7 per cent, whereas the latter was reduced from 10.6 per cent to 6.5 per cent.²

There is today agitation for a larger proportion of federal aid than is now received by the states for public elementary and secondary schools. This necessity is based in part upon the inequalities among the states and in part upon the fact that the federal government commands more of the productive revenue sources than do the state and local governments.

Further analysis of the sources of support of public elementary and secondary schools reveal that by far the largest amount of the revenue is derived from appropriations and taxation and that a relatively small proportion comes from permanent school funds and

leases, federal aid, and other sources. Table II shows the amount and percentage of revenue receipts from these sources.²

TABLE II
Income of Public Elementary and Secondary Schools by Sources

Source	Amount of All Revenue Receipts	Percentage of All Revenue Receipts
Permanent School Funds	\$ 20,177,226	0.9
Leases of School Lands	3,852,679	0.2
Appropriations and Taxation	2,125,780,232	95.6
Federal Aid	26,535,473	1.2
All Other Sources .	46,539,051	2.1
Total	\$2,232,884,661	100.0

Private elementary and secondary schools. Private elementary and secondary schools, of which there were 13,319, in 1938, reported a total enrollment of 2,741,654 pupils. These schools were supported almost entirely by private funds derived from tuition, gifts, subscriptions, and earnings of endowment funds. Exact figures for the income of private schools are difficult to obtain since some institutions do not make complete reports. Such figures as are reported to the United States Office of Education show that less than 3 per cent of the receipts of private schools including colleges and universities and special schools were derived from public funds. Of the income from public funds, 0.59 per cent came from federal sources, 2.27 per cent from state sources, and 0.04 per cent from county, city, and district sources. Reports show the income of private elementary and secondary schools to be \$215,852,865.³

Higher education. An analysis of the income of educational institutions of higher learning shows that the chief sources of revenue of those publicly supported are state governments, student fees, and the federal government, whereas the chief sources of support of the privately controlled ones are student fees, endowments, and private gifts and grants. The total incomes of the public and private institutions are nearly equal in amount when additions to the physical plants, auxiliary enterprises and activities, and receipts for increase of permanent funds are excluded. Table III shows the sources of income for current maintenance of public and private colleges and universities.¹

SURVEY

TABLE III
Income of Public and Private Institutions of Higher Education

Source	Publicly Controlled Institutions		Privately Controlled Institutions		All Institutions	
	Amount	Per Cent	Amount	Per Cent	Amount	Per Cent
Student Fees	\$ 46,961,517	17.9	\$132,034,711	50.8	\$178,996,228	34.3
Endowment Earnings	5,931,479	2.3	64,722,732	24.9	70,654,211	13.5
Federal Government	27,202,464	10.4	2,142,259	0.8	29,344,723	5.6
State Governments	133,448,299	50.9	7,510,824	2.9	140,959,123	27.0
Local Governments	21,894,104	8.3	196,598	0.1	22,090,702	4.2
Private Gifts and Grants ..	4,535,238	1.7	32,373,019	12.5	36,908,257	7.1
Sales and Service, related Activities	16,941,325	6.5	11,005,617	4.2	27,946,042	5.4
Miscellaneous	5,321,792	2.0	9,886,039	3.8	15,207,831	2.9
Total	\$262,236,218	100.0	\$259,871,799	100.0	\$522,108,017	100.0

(See also STATE AID TO EDUCATION, FEDERAL AID TO EDUCATION.) W.C.R.

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SURVEY. The survey is an organized study of the present status of an educational system, a school, or a particular problem or function involving the careful collection, analysis, and interpretation of pertinent data with constructive recommendations for future procedures. The term "survey" has been loosely used in the field of education to include studies ranging from the very specific investigation of a single school problem to such inquiries as The National Survey of Secondary Education¹⁰ and the National Survey of the Education of Teachers.⁴ While the application of this investigational method has varied widely, the method itself is relatively consistent.

Probably the best known type of school survey is that of a school system such as may be illustrated by the recent survey of the public schools of Newark, New Jersey.⁹

This survey included the study of such problems as the organization and administration of public education in Newark; the business administration of the school system; the school buildings, including a study of the condition and adequacy of existing buildings; the instructional and non-instructional personnel; the financing of the schools; early childhood education, elementary education and the education of youth in the city including the curricula, instructional materials, organization of the schools, and the status of the pupils; adult education and the recreational program; education of the exceptional pupils; guidance; and the general program of supervision and curriculum development.

Other general surveys of school systems¹ vary in scope but follow the same general procedures in that a careful analysis and interpretation of pertinent data is followed by recommendations for future policies and procedures.

Probably the next most frequent application of the survey method is the school plant survey. Such a study according to Caswell¹² should have the following characteristics:

1. Present or proposed practices or programs are questioned.
2. A comprehensive study and an evaluation are made of the status of all factors relating to the practice or program questioned.
3. Both immediate and future needs are stated as they are indicated by the status study and research findings.
4. Practices and programs are outlined to meet these needs.

The school building survey usually consists of intensive studies of such problems as

the general character and development of the community including an analysis of the population, occupations, and distribution of the people within the area; the present school enrollment according to age, schools attended, residence locations, and estimates of future enrollments; the evaluation of present buildings as to condition, present and future adequacy; the financial status of the school district including assessed valuation, bonded indebtedness, tax rate, and budget requirements; and finally, specific recommendations regarding the size, type, location, and cost of a program for the future development of the school plant in the district.

The use of the survey in the study of particular school problems has been widespread and is illustrated by surveys of teachers' salaries, pupil transportation, achievement of pupils in particular subjects, per pupil costs of education, and other specific school problems. The survey has by no means been confined to public school systems nor to the elementary and secondary school levels but has been widely used in the field of higher education. In a very thorough study of surveys of colleges and universities, Eells³ found and analyzed more than 500 written reports of such surveys.

In more recent years there has been a growing number of surveys of a social as well as an educational nature. The broader concept of the program of the schools has created a need for studies of community recreation facilities; pupil health; employment; leisure time activities; traffic accidents; economic and educational status of children and of adults; and general social surveys of entire communities such as that which the Lynds made of "Middletown",⁷ and of correctional institutions such as the Boys' Industrial School in Ohio.⁵

The more comprehensive surveys have generally been made by a staff of experts from outside the particular school or school system. While this procedure is still the prevailing practice, there are, however, a growing number of schools which are maintaining within their own organizations a research staff to conduct studies of numerous phases of the school program.⁸ These research bureaus devote a considerable proportion of their time to studies of the survey type and frequently carry on "continuous surveys."

While research bureaus and staffs of experts represent the better publicized method of conducting surveys, the survey method is widely used by individuals. A large proportion of the theses of candidates for degrees are surveys.

It is difficult to appraise the survey in terms of its fundamental value or of the contribution made to the general development of education through its use. That there have been poor surveys as well as good surveys cannot be questioned. That school surveys have had a valuable influence is also unquestioned. Criticisms, many of which were well founded, have been made of survey methods. In the earlier surveys, the opinions and judgments of the surveyors were based largely upon subjective observations and frequently reflected the bias or prejudice of the individual. The gradual refinement of survey technics and particularly the development of more scientific means of measurement in education have done much to eliminate this weakness. Some of the comprehensive surveys have been faulty in that they have been somewhat superficial and have resulted in conclusions and recommendations which were not sufficiently specific to be of much value. In some cases the inability of outsiders properly to sense and evaluate peculiar local conditions and problems has also resulted in justified criticism.

These and other objections, while valid in many instances, are balanced by obvious and unquestionable values which have come to the science of education through the school survey. Charles H. Judd⁶ has summarized this view as follows:

"The survey movement . . . has proved to be highly important, not only because of the information that surveys have supplied to communities and school officers, but also because of the opportunity they have given to students of the science of education to develop techniques of investigation. There can be no doubt that the rapid progress made by the science of education between the years 1910 to 1920 was in no small measure due to the extensive use in school surveys of measurement techniques and techniques of comparison."

The survey as used in education is a method of investigation which, like other methods, has a valuable function when properly used. Its function is not to explore new and untried

paths nor to do what scientific experimentation alone can do, but it does supply the best means now available to collect, analyze, and interpret data regarding present school conditions or affecting some particular phase of education activity. (See also COMMONWEALTH TEACHER TRAINING STUDY; EIGHT YEAR STUDY; NATIONAL SURVEY OF TEACHER EDUCATION; SECONDARY SCHOOL STANDARDS, CO-OPERATIVE STUDY OF.) W.E.A.

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SURVEY COURSES. Survey courses are those which are organized for the purpose of giving pupils a broad view of a particular area or subject. Such courses have been organized in practically every subject field and are most popular at the high school and college levels. A survey course in American Life attempts to give the student a broad understanding of problems of American life and utilizes subject matter in the fields of history, sociology, economics, and political science.

Likewise, survey courses in science take their content from the fields of biology, chemistry, astronomy, and physics. Such courses in literature attempt to give a broad general outline of the period or subject studied. As a part of the junior college movement much attention has been given to survey and background courses in both the social and physical sciences. Experimental programs have been developed at such institutions as Stevens College, the General College of the University of Minnesota, and Columbia University. At the high school level the most generally used survey course is in the field of social studies.

The introduction of survey courses has been defended as a means of counteracting the excessive specialization and departmentalization (*q.v.*) of the high school and college curriculum. Organized in terms of broad areas they tend to focus the students' attention on basic principles rather than on detailed factual material. Moreover, they make it possible to give at least an introduction to the major areas of human knowledge to all students, even though some of these students could not include in their programs of study separate courses in each of the subjects included in the survey course. Since survey courses stress the interrelationship of the various subjects included, justification has been claimed for the inclusion of survey courses even in the programs of those students who will later specialize in one of the subjects in that area. Other proponents of the survey course see in it a means of re-educating teachers to a continued understanding of the interrelationships between their subject and other subject matter areas.

Survey courses have been opposed, and in some instances have been discontinued after having been introduced, by those who see in this type of course an invitation to superficiality. These critics maintain that a subject has to be studied intensively to be understood and they see little value in the smattering which many students get as their only gain from having taken such a course. Mention has been made of the difficulty of finding teachers whose background is sufficiently broad to teach a survey course effectively. Objection has been raised, too, to the organization of many survey courses which, despite their professed interest in basic understandings, nevertheless organize the survey in terms

of unrelated, condensed versions of traditional courses.

Those who have taught survey courses often agree that the plan has much to commend it, but that the conduct of these courses frequently fails to solve satisfactorily many of the educational problems involved in the organization of the curriculum, and in the guidance of teaching and learning activities.

W.H.B.

SURVEY TESTS — See **ACHIEVEMENT TESTS; STANDARDIZED TESTS.**

SWEDEN, EDUCATION IN. The Swedish system of education is comprehensive and efficient. It has resulted in a fundamentally civilized nation with practically no illiteracy.

Secular education began after the Reformation with Gustaf II Adolf; it declined in the war-torn 17th century, but rose again during the 18th as one compensation for lost political power. Advanced and elementary education developed further in the 19th century. In 1842 the first law providing national elementary schooling was passed, and the first state seminary for teachers was founded. Henceforth the state became the decisive factor, replacing private initiative and church influence. The 20th century brought school reform laws (1905, 1918-19, 1928, 1935-36) and the enforcement of compulsory education.

The highest school authority under the government is the *Ministry of Public Worship and Education*. A *Board of Education* controls elementary and high schools and teacher-training institutions.

Elementary education consists of a two-year school for small children (*småskola*) and the elementary school proper (*folkskola*), lasting four to six years. School age begins at seven, and by 1948 attendance will be compulsory till the age of fourteen (law of 1936). The statutory school year (Sept. 1st to June 1st) lasts 34½ weeks. Until recently, many elementary schools ran half-time because of severe winters and the use of child labor. These half-time schools are gradually disappearing; in 1935, only 6.6% of all school children attended them. Traveling schools in Norrland and Lapland facilitate rural instruction, as do communal homes and workshops for children, school busses, etc.

After graduation from elementary school

all students not elsewhere enrolled must attend continuation school (*fortsättnings-skola*) for one or two years. If their performance here is unsatisfactory, they must continue until the age of eighteen (360-540 hours). The bi-weekly classes offer general civic education and professional training.

Elementary and continuation schools are free. They are financed by the municipalities (grounds, buildings, repairs) and the state (administration, supervision, teachers' salaries).

Teachers are trained in seminaries connected with practice schools. Only women teach in *småskola*, but both men and women teach in the elementary school proper.

With the belated but rapid industrialization of Sweden, state and municipalities have provided opportunities for post-elementary education in Intermediate Communal Schools, Higher Elementary, Apprentice, Trade, and Household Schools, etc.

Secondary education, reaching about 50,000 students, is mainly represented by two types of schools: (1) Lower secondary school (*realskola*), 6 years, following 4 years of elementary school; (2) Higher secondary school (*läroverk*), consisting of lower school (*realskola*), 5 years, and upper school (*gymnasium*), 4 years (*ringar*). The *gymnasium* has two divisions: the classical branch (*klassiska linje*) and the scientific and modern language branch (*reallinje*). The *realskola* corresponds approximately to an American high school. The curriculum, however, is more exacting and allows no individual differentiations. In the *gymnasium* the students may choose one of the divisions, and there is also some flexibility in the last two "rings." On completion of the *gymnasium*, students may enroll in any university.

A third type of secondary school, the *Lyceum*, was introduced in 1927. It is based on six years of elementary school and provides six years of general liberal education, stressing Swedish and civics.

Secondary schools have low tuition fees, 100-120 *kronor* a year (about \$27-\$33) and numerous scholarships.

All secondary schools require entrance examinations and comprehensive, written and oral, final examinations (*realexamen* for *realskola* and *lyceum*, *studentexamen* for *gymnasium*).

SWEDEN, EDUCATION IN

Private day schools and boarding schools are few and not important, except as experiments in progressive education.

Up to 1904, public higher education was for boys only. The one state school for girls (*Statens normalskola för flickor*) was a practice school for the State Higher Training College for Women Teachers. Private girls' schools required four or six years of elementary school and lasted seven or five years respectively, with no examinations. After 1905, a number of public high schools for girls were founded. Since 1927, all secondary schools must admit girls unless equivalent public girls' schools are available. Thus today most high schools are coeducational.

High-school teachers (*lektor, adjunkt, magister*) are trained chiefly at universities; they must take a State Examination in addition to academic degrees.

The methods of instruction in all schools, based mainly on memorizing from textbooks and on discipline until 1905, have since been modernized. Ideas came partly from Swedish (Ellen Key, Emilia Fogelklou, and others), partly from American educators (W. James, J. Dewey), partly from German school reforms after 1918. A series of government regulations, prompted and backed by liberal and labor groups, provided for adaptation of instruction to individual abilities and needs; elective courses; unification of the school system; integration of subjects; personality development; activization of studies; student self-government; school libraries; physical and manual training; and development of social consciousness.

Sweden has made two contributions to international education: work (1) in arts and crafts, or *sloyd*, and (2) in gymnastics. *Sloyd* is compulsory in elementary and intermediate schools, elective in secondary schools; its part in Swedish life goes beyond these schools. Swedish gymnastics, first organized by Per Henrik Ling in 1813, is practised in all schools and has been adopted in other countries. Like *sloyd*, it aims rather at well-rounded development of student personality than at spectacular achievement.

In medical care Sweden is a pioneer. Elementary schools received regular medical supervision in 1830, secondary schools in 1868. Today all schools have free medical, dental, and hygienic care.

There are schools for the blind, deaf-and-dumb, feeble-minded, and the delinquent; these schools are as yet not sufficient for existing needs.

Nursery schools and kindergartens exist chiefly in cities, in connection with cooperative or municipal housing projects. Though private, they are often subsidized by communities or sponsoring organizations.

Sweden's universities are the two old state universities of Uppsala (1477) and Lund (1648); the State Caroline Medical Institute of Stockholm (1805); the private universities of Stockholm (1877) and Gotenburg (1898), today largely municipally supported. Any student of a Swedish or American university may take degrees: *kandidat* (after 4 years); *filosofie magister* (5 years); *licentiat*; *doctor*. Scholarships and student self-help are less frequent than student loans, which burden many students for years. There are modern research institutes, mostly in science and medicine, and research libraries; also museums of Fine Arts, history, and ethnology.

Widespread voluntary adult education is one of the chief elements of Sweden's democratic way of life. The exact number of persons participating cannot be computed, but after a slight decrease since 1935 it still amounts to about one-half of the population. Public libraries have increased and developed since the first large state grant in 1907. In 1938, 8,200 libraries lent 15,488,000 books to 1,400,000 borrowers—one-fifth of the nation. People's High Schools (*folkhögskola*), introduced from Denmark (See **FOLK SCHOOLS**) have grown independently since 1868. They open new fields of knowledge, chiefly to the working classes, through an important experiment in cooperative living. Today there are 60 of them, mostly rural, specializing in various fields of interest (religion, workers' education, cooperative economy, etc.). Lecture courses are arranged by lecture societies, mostly state subsidized and supervised. An original Swedish creation is the study circle, originating in the temperance and labor movements. In 1940, 1200 such circles, studying various topics, held 388,000 meetings. The Workers Educational Association (*ABF*) and the Cooperative Associations (*KF*) sponsor the largest number, but all courses are politically non-partisan. They

SWITZERLAND, EDUCATION IN

are supplemented by special journals, radio service, and correspondence courses (28,000 in 1939).

Statistics. (All figures, unless otherwise stated, are for the year 1940 or a median

of the years 1938-40, as given in the official Statistical Yearbook for the years 1941 and 1942.)

Total population of Sweden: 5,371,000.
Children between 7 and 14 years: 761,287.
H.K.

I. Main Types of Schools

	Elementary Education <i>måskola folksskola</i>		Secondary Education <i>realskola läroverk</i>		Higher Ele- mentary School	Intermediate Schools
Schools	1,500	20,170	80	59	not available)	62
Students.	21,099	546,480	together 51,479		8,917	2,963
Teachers	together 30,166		2,461		643	763

II. Development of Private Schools

	Boys and Coeducational	Girls
No. of Students 1926	5,240	25,934
No. of Students 1938	5,012	18,187
No. of Students 1940	4,867	17,323

IV. Students of Special Schools

Blind	Deaf-and-dumb	Feeble-minded
287	647	1,697

III. Universities

	State	Private	Medical Institute
Schools	2	2	1
Students	5,091	2,536	894
Instructors	137	54	26

V. Professional Training and Special Skills

Schools	Students	Schools	Students
Trade	51,452	Central Institute	
Technical	1,832	for Gymnastics	128
Commercial	1,335	Mining	39
Agricultural	282	Forestry	52
Household	1,201	Military	410
Weaving	204	Naval	22
People's High Schools	5,632		

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SWITZERLAND, EDUCATION IN.

Organization. In Switzerland education is the function of the twenty-five cantons and semi-cantons. In each, education is under the control of a Department of Education

which exercises administrative and supervisory duties.

This division of powers of education reflects the historical development of the country from the first union of three mountain cantons in 1291 down through the Napoleonic period when Geneva was admitted to the *Confederation Helvétique*. As each addition was made to the country's territory, local control over education was continued with the final result that the Federal government possesses such powers as were given in the constitution of 1874 or granted through legislation at other times.

The 1874 constitutional provision affecting education demands that the cantons establish and maintain a system of free elementary education, that attendance be required in these free elementary schools, and that religious freedom be protected. Subsequent legislation has allowed for federal aid which is generally based on (1) total popu-

lation within the canton and (2) the difficulty of maintaining schools in remote mountainous districts. The amount of subsidy is approximately twenty cents per capita within the canton and thirty-five cents per capita in remote mountainous districts. The schools are supported, in addition to the federal aid, by special cantonal and municipal school funds and taxes. The Federal government operates but one institution, the Federal Polytechnic School in Zurich (founded in 1854). The Federal government has passed legislation dealing with compulsory physical education and with stipulations concerning the employment of youth.

Cantonal Organization and Administration of Education. Each canton has established a system of elementary education, most of them administer programs of secondary education, and several operate universities or other institutions of higher studies. Private schools—elementary, secondary, and higher—may exist but all are subject to cantonal inspection and supervision.

A number of pre-school institutions exist, among which are infant schools (chiefly for children of working mothers), Froebelian kindergartens (chiefly in German Switzerland), and nursery schools and Montessori (see MONTESSORI) schools (chiefly in French and Italian Switzerland). These schools are both public and private, free for necessitous parents and sometimes free for all.

Elementary education provides variously for ages six to sixteen. In some cantons an elementary school of four years is followed by a so-called secondary school of four years. Elementary schools extend over four to eight years and secondary schools over two to four years. These secondary schools are in reality complementary to the regular elementary schools. The subjects studied in the elementary schools usually include one national language in addition to the vernacular. Practical subjects, such as household management and shop work, are introduced before the close of the elementary period. Teachers are trained in the seventeen normal schools or the twenty-five special institutes or departments attached to other institutions. Teachers are selected by the school committee assisted by the popular vote of the parents.

Continuation schools offer courses of a

general cultural nature, in household arts, and in agriculture, for part-time students who have completed the elementary school. Various kinds of vocational schools, commercial, trade, and agricultural, are found. These have prospered partly because of federal subsidies and a federal law that requires the vocational training of apprentices to be conducted, wherever possible, in the schools.

Swiss secondary education, as the term would be used in the United States, is administered in *gymnasiums* (boys) and *lyceums* (girls) in the German-speaking area; in *collèges* (boys) and secondary schools (girls) in French-speaking Switzerland; and in schools under other names. These schools prepare for the universities and for the Federal Polytechnic School. The curricula are classical, scientific, and modern (languages). The courses vary in length from five to nine years. Entrance into the professions is in the hands of the Federal government, which specifies the educational requirements, in both the secondary school and the university. The completion of the secondary school is marked with the passing of a Federal examination which admits students to the university, provided the subjects passed are prerequisite to the university course for which the student matriculates.

In some cases the cantons operate the secondary schools; in others, the municipalities. Small fees are added to cantonal and municipal taxes and to Federal subsidies for the support of these schools.

The teachers are highly trained university men and women; frequently they conduct classes in the university as well. They are at the same time expected to have a broad general education and competence in their subject specialties.

Higher institutions are of three kinds: the universities, of which there are seven, located at Zurich, Berne, Fribourg, Bâle, Lausanne, Neuenburg, and Geneva; the Federal Polytechnic School at Zurich; and certain others organized for specific purposes, e.g., the Jean-Jacques Rousseau Institut and the Graduate Institute of International Studies in Geneva, and advanced conservatories and art schools in various cities. The Rousseau Institut is devoted to advanced study of educational problems and is the only institution of its kind on the continent; the Graduate

Institute (temporarily operated in other countries during World War II) specializes in the field of international relations. Both institutes grant doctorates through the University of Geneva.

Important influences on education have emanated from Switzerland. John Calvin published his *Institutes of Christianity* in Geneva in 1536, founded the *collège* there in 1559, reorganized the faculties into the University of Geneva, and established the union of state, school, and church which served as the basis for the New England tradition in American education. Rousseau (*q.v.*), author of *Émile*, was born in Geneva in 1712; Voltaire's home for years was just outside the gates of Geneva across the border in France. Pestalozzi (*q.v.*) operated his schools in Burgdorf, Stanz, Yverdon, and other Swiss towns. Fellenberg developed the manual training idea and agricultural education at Hofwyl. Herman Krüsi came over from Switzerland to work with E. A. Sheldon at the Oswego Normal School. Louis Agassiz emigrated from his Swiss home to become one of the outstanding teachers in American higher education. Among the outstanding educational leaders of modern times the following deserve mention: Pierre Bovet, J. L. Claparède (*q.v.*), and Jean Piaget (*q.v.*) at the Rousseau Institut; William E. Rappard of the Graduate Institute in Geneva; and C. G. Jung, world famous psychoanalyst, at the Federal Polytechnic School in Zurich.

Statistics:

General

Area—15,944 square miles			
Total Population—4,218,000 (estimated 1940)			
Language Distribution		Distribution of Religions	
(1930 census)	per cent	(1930 census)	per cent
German .	2,924,313 72	Protestant	57
French ..	831,097 21	Roman Catholic ..	41
Italian ..	242,034 6	Jewish	0.4
Romansch	44,158 1	Others	1.6

Education—Enrollments

Primary Schools (1939-40)	455,561
Secondary Schools and Middle Schools (1939-40)	73,422
Federal Polytechnic School at Zurich (1940-41)	2,118
Matriculated students at 7 universities (1941)	9,649
	F.C.W.

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SYMPATHETIC NERVOUS SYSTEM

—See NERVOUS SYSTEM.

SYNTHETIC METHOD (IN READING)—See READING, METHODS OF TEACHING.

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T-SCORE—See SCORES, CONVERSION OF.

TAXATION — See FINANCE, SCHOOL; SUPPORT OF EDUCATION.

TEACHER EDUCATION. Teacher education refers to the whole range of activities that constitute preparation for, and improvement of members of, the teaching profession. It includes pre-service education for those who have not had teaching experience and in-service education for those who are actually engaged in teaching. The elevation of quantitative and qualitative standards for the profession is reflected in the use of the term "teacher education" rather than the older term "teacher training." Whereas teacher training suggests the development of a rather narrow proficiency in the skills or methods of classroom teaching, teacher education connotes the broad professional preparation needed for the highly complex task of teaching in the modern world.

The formulations of the aims of teacher education are many, but in most of them will be found some recognition of the following objectives: (1) Since the personality of teachers has so great an effect upon students, it is most important that teacher education aid prospective teachers to achieve balance of personality. (2) Prospective teachers should gain a rich first-hand experience and broad understanding of our culture, in order to enhance the cultural experience and understanding of their students. (3) If the schools are to be an agency for the preservation and improvement of our democratic society, teachers should not only study the social, political, and economic bases of democracy but should also have experience in working, studying, and living democratically while preparing for teaching. (4) Prospective teachers should gain an adequate understanding of the process of human development, growth, and learning at all age levels and become competent in guiding the process of growth and learning of young people both in and out of school. (5) Prospective teachers should gain an un-

derstanding of the resources and methods of critical inquiry in the organized fields of human knowledge that are appropriate to their work as teachers, in order to help young people to use similar resources and methods in solving their own problems. (6) Teachers should develop a working philosophy of life and of education appropriate to their professional function and to the democratic society in which they are to function.

Within such a framework the pre-service education of prospective teachers has expanded its purposes and raised its standards in many ways. Replacing the older conception of "training" as embodied in the earlier normal schools (*q.v.*), new institutions of teacher education have appeared in the last fifty years. Teachers colleges (*q.v.*), departments of education within liberal arts colleges, and schools or colleges of education within universities have become the dominant professional institutions of teacher education. Secondary school teachers commonly receive their pre-service education in liberal arts colleges (*q.v.*), teachers colleges, and universities; elementary school teachers are prepared principally by teachers colleges, normal schools, and universities.

The trend in recent years has been to extend the number of years of professional preparation as well as to raise the quality of such preparation. Whereas the normal school of the nineteenth century required only an elementary schooling or two years of high school before the one or two years of professional training, the usual requirement today is high-school graduation before admission to the professional institution and a bachelor's degree before beginning to teach. Some states are requiring new teachers to obtain the master's degree before they begin to teach in the high school.

The pre-service education of teachers is coming to be recognized as including the following four elements: general academic background, subject matter specialization, foundations of education, and induction into teach-

ing. The general academic background is intended to give the prospective teacher a broad acquaintance with the major areas of organized knowledge and of human activities. This may be emphasized in the first two years of college or may continue throughout the pre-service period.

Subject matter specialization in the field in which the prospective teacher will work is usually required as a special competence in addition to the general education. The trend has been definitely to widen the conception of what a field of specialization is, for example, to urge specialization in the general field of science rather than merely chemistry or physics or botany or zoology. This "broad field" approach is intended to achieve an integration of the related subject matter fields and usually applies to such classifications as the humanities and language arts, social sciences, science and mathematics, and the arts. (See INTEGRATION.) The methods of teaching the subject matter fields are sometimes taught in connection with the "academic" subjects but more commonly in "methods courses in education.

The foundations of education or "courses in education" are usually intended to give the prospective teacher a wide acquaintance with the field of education in its various relationships and to provide a common background of professional outlook and acquaintance with educational problems that are common to all teachers no matter what subject they may teach. The foundations function is usually achieved through courses in philosophy or principles of education, history of education, educational psychology, and educational sociology or the social relationships of education. Some institutions are attempting to weave the elements of these separate foundational approaches into an integrated orientation to the whole field of education.

The induction into teaching is intended to give the prospective teachers the opportunity to apply in actual teaching situations the theoretical principles of education and the subject-matter knowledge that they have acquired in their general education, their subject matter specialization, and their foundations of education. Induction thus is coming to be looked upon as a continuing process that includes observation of instruction and participation in teaching procedures, and

culminates in actual student teaching (*q.v.*) or practice teaching.

In addition to the improvement in pre-service education, a desire to stimulate and continue the professional growth of teachers has led to a vast increase in the opportunities for the in-service education of teachers in the last fifty years. The more common means of in-service education include supervision of instruction (*q.v.*); inter-class visitation (*q.v.*) and visits to schools that are similar to the teacher's own school or reveal contrasts; consultative services made available to the teacher either by regular members of the local school system or by visiting consultants; summer, extension, or part-time study at a higher institution; research work, survey work, and writing and speaking on professional topics; and participation in workshops (See TEACHERS' WORKSHOP), teachers' meetings (*q.v.*), professional organizations, and community work. In general, the conception of in-service education has changed from an authoritative control over teachers' activities to a cooperative improvement of all of the teachers' functions.

Summer study at higher institutions has become one of the most popular and important of the direct methods of professional growth for in-service teachers. Most institutions of teacher education make special provisions for summer sessions and for part-time study in which teachers can engage while carrying on their jobs, either by attendance in late afternoon or evening hours at a nearby institution or by extension and home study work. Many institutions provide extra-mural courses in off the campus centers easily accessible to teachers. Through such methods teachers can broaden their professional background or can carry on advanced work in their field of specialization leading to research and higher degrees. One of the most important developments of in-service education in recent years is the workshop movement. Intended to improve upon traditional practices and those of teachers' institutes where teachers gather for two or three days to listen to speeches in large or small groups, the workshop tries to increase the participation of teachers in their professional growth by centering attention upon the individual problems that a teacher faces in his or her own professional situation.

TEACHER EDUCATION, COMMISSION ON

In addition to these methods the various kinds of professional organizations provide direct means of in-service growth for teachers. The National Education Association (q.v.) is the largest educational organization in America and includes numerous affiliated associations of a specialized kind and many state and local teachers' associations. The American Federation of Teachers (See TEACHERS' UNION) and the Progressive Education Association are smaller but influential national organizations of teachers who find considerable professional stimulation from their work in these groups. There are also numerous national organizations of teachers devoted to one or more of the recognized subject matter fields. Finally, hundreds of local teachers' associations enroll many teachers and carry on their own professional programs. Somewhat more indirect and less formal in its achievement of professional growth but none the less important is the stimulation provided by professional and general reading, travel, sabbatical leaves, and community work of all kinds. The struggles to achieve better salaries, regular increments of salary, health and sick leaves, and retirement and tenure status all help to create the conditions of work necessary for the development of the attitudes that lead to professional growth.

Outstanding in the uplifting of the education of teachers has been the great amount of research and investigation on a wide range of professional problems that has been carried on in the past fifty years. Foremost among these investigations has been the work of professional educators at teachers colleges and schools of education throughout the country, as well as the work of such professional organizations as the National Education Association, the Progressive Education Association, the National Society for the Study of Education (q.v.), the National Society of College Teachers of Education, the American Association of Teachers Colleges, the John Dewey Society, and many others. Such surveys as the *Commonwealth Teacher-Training Study* (q.v.); the study by Learned, Bagley, and others (See bibliography); and the *National Survey of the Education of Teachers* (q.v.) have also had a great deal of effect. A somewhat different approach to the improvement of teacher education is represented by the Commission on Teacher

Education of the American Council on Education (q.v.). Through the work of the Commission since 1939, many liberal arts colleges, teachers colleges, universities, and school systems have been stimulated to engage cooperatively in improving and evaluating their programs of teacher education. R.F.B.

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TEACHER EDUCATION, COMMISSION ON (American Council on Education). Early in 1938 the American Council on Education established the Commission on Teacher Education to serve for a period of five years. Two years previously, the Problems and Plan Committee of the Council had interested itself in studying the problems of teacher education. One part of its report dealt with the creation of a Commission to make a nation-wide study concerning the problems facing the institutions of higher learning relating to the training of

teachers. A total of \$250,000 was secured from the General Education Board to further a thorough and intensive study.

The Commission on Teacher Education has worked in close cooperation with existing agencies that are concerned with the education of teachers and has drawn on independent study and research conducted by colleges and universities. Twenty colleges, universities, and teacher training institutions, and fourteen public school systems were selected as cooperating agencies. A number of conferences have been held at several universities and the Commission has printed reports from time to time concerning the progress of the study.

In dealing with the problem of teacher education the teacher has been thought of as a "complete human being". The Commission has been concerned with teacher education from the time teachers enter service to the time they withdraw from it. The Commission's study has been devoted, not only to "preservice" training but also to "inservice" training. In addition to these broad fields the Commission has been interested in the determination of objectives; the recruitment, selection, and guidance of teachers; the development of adequate understanding of the nature of the child; the development of social understanding and of skill in cooperating educationally with community agencies beyond the school; and the development of creative powers in teachers. The main emphasis of the Commission has been in the field of child development and in teacher selection and adjustment. Recently it has been devoting much of its attention to the problem of the teachers' part and responsibility in a democracy and a changing social order. Recent conferences and reports have emphasized that education cannot exist in a vacuum—it cannot remain aloof from society, but as a part of the general culture must take a part in shaping the future. (See TEACHER EDUCATION.)

M.J.T.

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TEACHER EDUCATION, NATIONAL SURVEY OF—See NATIONAL SURVEY OF TEACHER EDUCATION.

TEACHER EXAMINATIONS, NATIONAL. The national teacher examinations, administered for the first time in March, 1940, to 3,726 candidates and again in March 1941, to 4,718 candidates for teaching positions throughout the country, consist of a set of common examinations covering the specific fields in which the candidate expects to teach. It is planned to administer these examinations annually. The common examinations consist of sections designed to test reasoning (40 minutes); English comprehension (40 minutes); English expression (40 minutes); general culture, which includes current social problems, history, and social studies, literature, science, fine arts, and mathematics (180 minutes); professional information, which includes education and social policy, child development and educational psychology, guidance and individual and group analysis, general principles and methods of teaching (120 minutes); and contemporary affairs (60 minutes). It is obvious, therefore, that these examinations are essentially tests of knowledge rather than of attitudes and skills. They are recommended on the theory that admission to the teaching profession in any capacity should be restricted to those teachers who possess more than a certain minimum of professional preparation, culture, and intelligence. The optional examinations, of which

candidates for elementary-school positions take the first and candidates for the secondary level any other two, are designed to show the mastery of subject matter; they are: 1. Education in the Elementary School; 2. English Language and Literature; 3. Social Studies; 4. Mathematics; 5. Biological Sciences; 6. Physical Sciences; 7. French; 8. German; 9. Spanish; and 10. Latin.

All examinations are of the objective type and consist of multiple-choice, short-answer items. Teachers of extended experience and graduating seniors in teacher-education institutions do equally well with them.

These National Teacher Examinations were developed under the direction of the National Committee on Teacher Examinations which was appointed by the American Council on Education. This committee was authorized to supervise and delegate to the Cooperative Test Service the task of preparing them and examining the teaching candidates. The committee was enabled to undertake this project by a subvention from the Carnegie Foundation for the Advancement of teaching.

These annual examinations make possible for the first time a direct comparison of candidates from widely scattered sections, on certain abilities thought to be associated with teaching success. However, there has been some controversy concerning the desirability of selecting teachers on the basis of scores made by candidates on widely standardized objective tests. The National Committee on Teacher Examinations has therefore repeatedly emphasized that the examination results should not be used as the sole basis for teacher selection.

D.H.C. and A.R.A.

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TEACHER FAILURE. Types of personalities who fail as teachers, and the causes of teacher failure are not known with any great accuracy. The difficulties encountered by beginning teachers have been studied and methods of guidance have been suggested for them. But the teacher who fails and drops the work disappears from notice.

Among the chief causes for the failure of teachers appear to be (1) a lack of real interest in the purposes of the profession; (2) a lack of aptitude for it; (3) specific irritations or frustrations which may destroy initiative; and (4) clashes with administrative procedures. Some frustrations may arise from (a) too much work, (b) unfair criticism, (c) lack of opportunity to talk over problems with supervisory officers, and (d) dissatisfaction with policies of assignment of work or salary.

Many of these difficulties can be precluded or overcome through (1) more realistic teacher training; (2) improved pupil-teacher and internship plans; (3) better selection of students by teachers' colleges; (4) a more careful selection of teachers by superintendents and school boards; (5) gradation in assignments of extra responsibilities; and (6) helpful and sympathetic supervision.

A.V.O.

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A. S. BARR, *Characteristic Differences in the Teaching Performance of Good and Poor Teachers of the Social Studies* (Public School Publishing Co., Bloomington, Ill., 1929).

TEACHER LOAD. *Teacher load* and *service load* are synonymous. Distinction should be made, however, between *service load* and *teaching load*. Superintendents should discriminate between the two and point out the difference to applicants who should recognize that their service load will be one thing, and their teaching load will be another. In brief, all teachers are expected to carry many obligations beyond those directly related to meeting their classes.

Class work, preparation for classes, tests, examinations, recitations, attendance at or work with assemblies, committee work, departmental meetings, faculty meetings, requisitions and reports, lesson plans, notebooks, correction of papers, and other activities relating directly or indirectly to the task of teaching make up the *teaching load*. The sum total of all activities involved in the teaching load plus all the other duties incident to teaching, such as extracurricular duties and community duties, constitute the *service load* of

the teacher.¹ The teacher load is affected by such factors as the length of the class period, the total number of pupils taught, the number of sections into which they are divided, the individual differences and other personality traits of the students, the nature of the subject taught, the time necessary for preparation, the number of different preparations necessary, and the amount of time given to co-operative activities.

Many in the field have attempted to give these matters consideration by setting up measures for determining the load a teacher is carrying. Among the formulas is one used by Douglass which takes into account units of teaching load per week (TL); class periods spent in classroom per week (CP); number of class periods spent per week in classroom, teaching classes for which the preparation is very similar to that for some section, not including the original section (Dup.); number of pupils in classes per week (NP); number of class periods spent per week in supervising the study hall and student activities, attending teachers' meetings, doing committee work, assisting in administrative or supervisory work, participating in other co-operative activities (PC); and the gross length in minutes of class periods (PL).

$$TL = \left[CP - \frac{2 \text{ Dup}}{10} + \frac{(NP - 20 \text{ CP})}{100} + \frac{PC}{2} \right] \left[\frac{PL + 55}{100} \right]$$

In studying 1,263 secondary-school teachers and principals in Minnesota, Quanbeck and Douglass, using the Douglass formula, concluded that high-school teachers in small schools have heavier teaching loads than do such teachers in large schools; teachers in accredited institutions have greater loads than those in the non-accredited institutions; beginning teachers have heavier loads than those who have taught for long periods; and teachers of physical education, home economics, industrial arts, and foreign language carry lighter loads than other teachers.³

ANNUITY ASSOCIATION OF AMERICA.)

D.H.C. and A.R.A.

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TEACHER-MADE TEST—See STANDARDIZED TEST.

TEACHER PARTICIPATION IN ADMINISTRATION — See ADMINISTRATION, SCHOOL.

TEACHER PLACEMENT. The American Association for the Supply of Teachers was organized in Philadelphia in 1835. It operated more as a teachers' organization than as a placement office. In 1846, a commercial teachers' agency was opened in Boston. Between 150 and 200 commercial teachers' agencies operated in the United States in the 1880's, with educational institutions recognizing meager responsibility for teacher placement until almost the close of the nineteenth century. Today, most teachers are placed by one or more of the following agencies: college and university placement bureaus, commercial teachers' agencies, governmental employment agencies, state and national educational associations, and the teacher recruiting agencies of city and state school systems.

Superintendents do not agree in their preference for college placement bureaus, private teachers' agencies, or governmental placement agencies. Those who prefer college and university placement bureaus cite two major advantages for this kind of solution to the vexing problems of teacher placement. Since these bureaus usually function as an institutional service to graduates, they escape the commercialism of the private agency which receives five per cent or more of the salary for the first year. Moreover, the college bureau is often more frank concerning the candidates' qualifications, although reputable commercial agencies are also very conscientious in selecting and recommending their candidates.

Twelve state departments of education maintain placement services for teachers and three others conduct some placement informally and incidentally. In five additional states, the state educational associations maintain teacher placement services. Eleven states have incorporated this type of service with their regular public employment service. The service they give is free to both employers and applicants. Thus, thirty-one states have provided for some type of state-wide placement service for teachers.

To facilitate the work of placement offices, whether they operate state, institutional or private agencies, school administrators should submit full descriptions of the positions for which teachers are desired. The administrator should furnish the placement bureau with an occasional evaluation of the work of the teacher placed by the bureau. Cooperation between superintendents and teacher-placement officials will result in more effective teacher-placement. Teacher-placement will be improved when teachers who seek positions give references to school people rather than to their personal friends, ministers, and political office holders.

D.H.C. and A.R.A.

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TEACHER-PUPIL RATIO—See PUPIL-TEACHER RATIO.

TEACHER RECRUITING. Recruiting the best candidates for teaching service is done in a variety of ways. The principal and teachers in the local high school may help young people to decide upon or against teaching as a vocation. Communities may help to establish standards for the teaching profession. Colleges and universities are largely responsible for selecting candidates for admission to their teacher-education courses, and may provide guidance to prospective teachers.

Prospective teachers, while they are attending high schools or the earlier years of the university, should be guided into subject fields that are increasing in popularity or holding their place, rather than into those that are disappearing from the curriculum. Thus, Overn showed that certain fields were disappearing from the program of studies in Minnesota high schools during a ten-year period, while other fields were being taught by rapidly increasing numbers of teachers.

Superintendents seek those immediately ready to accept positions (1) by means of published announcements of vacancies and the

use of voluntary applications, (2) by asking for the names of recent graduates from teacher-training institutions, and (3) by soliciting the services of state employment agencies or commercial teachers' agencies.

Interviewing a prospective teacher is a task for the superintendent, principal, assistant superintendent, or a committee. All interviewers should be trained specifically for the work of interviewing, and should use carefully prepared forms to record their ratings. A typical form may provide for marking on a five-point scale such things as the personality, speech, dress, physical characteristics, educational philosophy, and professional outlook of the teacher. Other qualities considered in relation to teaching efficiency are intelligence, scholarship, and adaptability.

Some examiners believe that it is better to have an orderly review of all factors examined, with a definite weighting for each, than to risk the greater injustice of failing to consider all the qualifications. There is a tendency toward the use of objective devices for rating new recruits as teachers. There is need for more objective studies of the validity and reliability of measures predictive of teaching success in terms of better criteria of teaching efficiency. Measures currently used are disappointing with respect to their validity for selecting the best candidates for teaching. (See TEACHERS, SELECTION OF.)

A.V.O.

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TEACHER, SPECIAL — See SPECIAL TEACHER.

TEACHER TRAINING — See TEACHER EDUCATION.

TEACHER TRAINING STUDY, COMMONWEALTH — See COMMONWEALTH TEACHER TRAINING STUDY.

TEACHER TURNOVER. *Teacher turnover*, in general, refers to the proportion of teachers in a given group at a given time who are new to their respective positions. Investigators vary, however, in their definitions of "new teachers" or "teachers new to their

TEACHER TURNOVER

respective positions." These discrepancies in definition result in sets of figures that rarely agree. For example, one investigator may include in his data only those teachers who have been employed to teach for the first time in a given school or district, but who may either have completed previous teaching elsewhere or never have taught before. Another investigator may include also those teachers who merely changed positions in the same school system. It can readily be seen that the rate of teacher turnover would be greater as reported by the latter investigator.

In the United States during 1930-31, although there were wide variations among states and among districts, in the elementary schools one out of every five teachers was new to his position; in junior high schools, one out of every seven; and in senior high schools, one out of every five. In open country one- and two-teacher schools, two out of every five teachers were new; while in elementary schools in cities of more than 100,000 population, only one out of every twenty teachers was new.

During the depression, the rate of turnover for all types of teachers decreased. While complete data are not available, it appears that the rate of teacher turnover increased slightly during the period of recovery. The mobilization of man power during World War II resulted in a tremendous increase in the rate of teacher turnover.

Vacancies in teaching positions are caused by resignations, dismissals, leaves of absence, or deaths of former teachers; or they may occur from the establishment of new positions.

Among the reasons given by teachers for resignation are (1) acceptance of a teaching position elsewhere; (2) acceptance of a position in another occupational field because of higher salary or because of the interest it holds for the teacher; (3) marriage (in the case of women) and engaging in homemaking; (4) engaging in further study, travel or research; and (5) meeting the demands of personal obligations at home. The reason given most frequently by teachers for resigning from teaching positions is the acceptance of teaching positions elsewhere. Inducements such as higher salaries, better working conditions or working hours, or greater opportunities for professional growth or advancement are responsible for the large

number of teachers who resign to accept other teaching positions. A chance to live with or near friends or relatives is a reason given by a significant number of teachers for changing positions. At times, the teacher may change positions if the new work is more nearly in line with his interests and abilities than is his present position.

Various studies have indicated that teachers are dismissed for insubordination, incompetence or unsatisfactory work, physical or mental disability, immorality, or for political reasons. While turnover is less in states where tenure (*q.v.*) legislation has been enacted to prevent school boards from dismissing teachers for political or other unjustifiable reasons, there is some evidence that certain abuses of tenure legislations may contribute to a higher rate of teacher turnover than is necessary or justifiable. For example, where a probationary period of service is required of teachers before they achieve tenure, some teachers may not be reappointed at the end of the probationary period in order that the number of teachers protected by tenure in a particular school system can be kept as small as possible.

An analysis of the reasons given by teachers for their resignations and of the causes for dismissal of teachers suggests that the rate of teacher turnover may be decreased by (1) paying salaries comparable with the salaries paid for work in other occupations requiring equivalent training and education; (2) protecting teachers through tenure legislation from unjustifiable dismissals; (3) providing more adequate supervision and guidance under creative and sympathetic leadership; (4) creating better working conditions for teachers by having smaller classes and by providing adequate and appropriate educational supplies and equipment; (5) discontinuing the policy of many village and city schools of demanding two years of previous experience as a prerequisite for employment; (6) raising the certification requirements for teachers; and (7) eliminating discrimination against the married woman teacher.

A high rate of teacher turnover leads to school staffs that are composed of teachers who do not remain in the school long enough to become sufficiently aware of the special problems of the school and the community to enable them to achieve the results expected. While it is not known just how long it takes

a teacher to become sufficiently aware of these problems in order to do the task expected of him, no teacher can be expected to make a maximum contribution by being a member of the school or community for a period of only a year or two.

Though it cannot be denied that a high rate of teacher turnover is undesirable since it tends to contribute to instability and inefficiency in education, a negligible rate of teacher turnover may also have undesirable consequences. A school system of any appreciable size that does not continue to employ teachers new to the system is denied the benefits accruing from the influx of new ideas and challenges contributed by new entrants. In one large city in the United States no new teachers have been appointed to the elementary schools and few new teachers have been appointed to the secondary schools for more than ten years because the pupil population is on the decline and the teachers enjoy all the privileges conferred by tenure and a high retirement age. Some critics, impatient with the slowness with which that school system has adopted newer concepts of curriculum and methodology, attribute the resistance to change to the almost complete lack of teacher turnover. (See **TEACHERS' LEGAL STATUS; TEACHERS, SELECTION OF; TEACHERS, STATUS OF.**) W.V.N.

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TEACHERS' ABSENCE. Teachers average 6.25 days of absence each year. This average breaks down into 5.28 days for personal illness, .13 days for illness in the home, .21 days for visitations and conferences, .27 days for death in the family, and .36 for other reasons. The absences follow no sequence; for example, there may be no teachers absent today, while twelve may be out tomorrow.¹

Kuhlmann's study showed that 5,260 teachers in 13 cities were absent 5,113 days in the school year for reasons other than their own illness and maladjustments. Illness in the family accounted for 4 per cent; death in the family 10 per cent; visiting and attending educational meetings 15 per cent; miscellaneous reasons 16 per cent. Fifty per cent of the teachers were each absent three days or less, while 29 per cent were not absent at all.²

It is highly essential that absence regulations be flexible, clearly defined, and specifically stated; that they afford protection to the board, teacher, and pupil; that they result in some uniformity with regulations in other systems; that they be simple of administration and of application; and that they imply an adequate system of records.

Types of regulations in use include the Merit Plan—whereby the number of absences allowed is dependent upon each teacher's merit—which is theoretically ideal, but difficult to operate successfully; the plan of deducting the substitute's salary, which does not meet satisfactory criteria for absence regulations; the Group-Insurance and Mutual-Benefit Plans, under which the responsibility for payment to absentee is shifted largely from employers to employees; the Flat-Rate, Fixed Amount Deductible Plan, whereby a number of days are allowed to each teacher for sick leave, but a small amount is deducted from the teacher's salary for each day of absence; the Flat-Rate Plan, which takes care of the great majority of teacher absences by allowing the teacher ten days of sick leave with pay each school year; and the Cumulative Plan, which offers the teacher protection against the expenses of an extended illness. The last-named plan has increased in popularity during recent years, in spite of the fact that it fails to protect the young teacher who has not accumulated many days of sick leave.

A proposed teacher-absence regulation, which combines some of the good qualities found in several of the plans now in use, provides that teachers absent from duty for any reason shall receive their regular salary for the first ten days of absence, one-half their regular salary for absences beginning the eleventh day of absence and continuing through the twentieth day, one-fourth their regular salary for absences beginning with the twenty-first day and continuing through the thirtieth day, and no salary beginning with the thirty-first day of absence. If the

average absence for the teachers in a school or school system has not exceeded an average of ten days of absence during the year for all reasons, the amount deducted from each teacher's salary shall be refunded in full. If the group exceeds an average of ten days, a proportionate reduction in the teacher's salary shall be made for each day of absence.¹

Each of these plans has advantages and disadvantages. The advantage to employers of teachers in selecting only strong and healthy teachers is obvious. (See HEALTH, LEAVE OF ABSENCE, SABBATICAL LEAVE, and SICK LEAVE.) D.H.C. and A.R.A.

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3. C. R. VAN EMANS, *The Absent Teacher in the Public Schools of Columbus, Ohio* (Ohio State University, Master's Thesis, 1931).

TEACHERS' AGENCY—See **TEACHER PLACEMENT**.

TEACHERS' ANNUITIES. An amount of money payable yearly, or at other regular intervals, for a definite or indefinite period is an annuity.

Annuity payments may be considered as added salary allowances to public servants. A small part, usually three to five per cent, of the teachers' salaries is withheld and payment is deferred until after the teacher is retired from active duty. Usually the amount of salary deducted from the teacher's salary is matched by the employing body. This matched amount occasionally is less than the amount deducted from the teacher's salary. The deducted and the matched amounts, taken together, along with the accrued interest thereon, go to make up the teacher's annuity.¹ Both annuity rates and payments are based on mortality tables.² The part of the annuity contributed by the employing board usually is subject to taxation, while the part contributed by the teacher is usually tax exempt. The cost of administration of the annuity fund is usually borne by the state.¹ In case the teacher dies, resigns, or quits the profession, his contributions, with the accumulated interest thereon, are returned to him or his estate.²

In providing funds for teachers' annuities,

state legislatures may appropriate money from the general fund, cause local school districts to make contributions to a state annuity fund, or appropriate funds directly from the state treasury.

Because teachers are considered as employees and not officers of the state, the courts have generally held that a contractual relationship exists between the teacher and the state. Whereas, annuity funds set up for the protection and benefit of municipal and state officers may be eliminated by future legislation, this contractual relationship prevents the state from taking away moneys set aside for teacher's annuities.³ In the absence of statutory authority, it is doubtful whether school districts may deduct portions of teachers' salaries to create an annuity fund.

Teacher annuities work toward raising educational standards, cause seasoned teachers to remain in the service, give dignity to the profession, encourage better qualified persons to enter the field, and provide for retirement and old age. (See **TEACHERS' INSURANCE**, **TEACHERS' RETIREMENTS**, and **TEACHERS' INSURANCE and ANNUITY ASSOCIATION of AMERICA**.) D.H.C. and A.R.A.

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TEACHERS, APPOINTMENT OF.

The appointment of a teacher is not complete until he is at work serving his pupils. Assuming that the most approved practice has been followed, the superintendent has recommended the best qualified teacher from the eligibility list. The board has approved the recommendation and authorized the issuance of a contract. The superintendent has sent the signed contract in duplicate to the teacher, who has signed and returned one copy. The contract has been made effective for the opening of school in September, and by its terms the teacher is appointed to serve in the school system and not in a particular building.

When the teacher arrives in the fall, the superintendent, the principal, or their representative helps him to find a location in comfortable living quarters with opportunity

to do scholarly work. He is introduced to a specific assignment of duties and given introductory supervision. Later, his capabilities are analyzed as a basis for more proper placement.

The Committee on Equal Opportunity and the Committee on Tenure of the National Education Association have urged that a uniform contract form be used throughout each state, and that it should state (1) the length of the school term, (2) salary, (3) certificate required, and (4) a date for notification of reelection. These and other provisions for equal protection of the teacher and the board should be stated in legally enforceable language.

Three typical terms of employment which may be provided in the contract are (1) an annual election, (2) a continuing contract, that requires the board to notify the teacher by a specified date if his services will not be required for the following year, and (3) probationary employment. Under the third arrangement, the board may dismiss the teacher at the end of any year during the probationary period without showing cause, but must employ him on permanent tenure (*q.v.*) if it reemploys him at the end of that probationary period. (See **TEACHERS' CONTRACTS; TEACHERS' LEGAL STATUS.**) A.V.O. References.

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"Teacher Personnel Procedures: Selection and Appointment," *Research Bulletin of the National Education Association*, XX: No 2. p. 71-74, March, 1942 (Washington, D. C.)

TEACHERS' BONUS. For summer-school attendance, travel, outstanding achievement, and similar reasons, payments to teachers, in the form of a bonus, sometimes are made in addition to the contractual salary. Such payment is usually a certain percentage of the annual salary which is uniform throughout a given school system or unit. In order to encourage summer-school study, many boards of education give outright grants, for example a bonus of \$50, usually on the basis of the credit earned. Extension and correspondence work are encouraged in the same way in a few school systems. Such encouragement is provided on the assumption that continued college study leads to increased teaching efficiency. Where this practice is followed, it is important that the teacher's

health be guarded carefully. The bonus plan is used in a few instances to help retain superior teachers over a long period of years.

Approximately 40 per cent of the city school systems encourage summer-school attendance by financing a part of such attendance. In '58 per cent of 605 cities that give direct financial aid for summer-school attendance, teachers are granted a permanent salary increase in addition to the bonus.

Provided teachers attend accredited institutions, school boards and administrative officials, authorities hold, should not specify the particular summer school for the teachers to attend, but the superintendent or principal should feel free to recommend to the teacher certain definite courses which will help meet the teacher's particular needs. The teacher's transcript of summer-school work, it is further held, should be reviewed, and the type of courses taken and the quality of work done should be approved before payment of bonus or of salary increases, or before other recognition is given the work. Many school administrators believe that the advantages claimed for the bonus should be included in the salary schedule instead of using the bonus plan to obtain these results. (See **TEACHERS' SALARIES.**) D.H.C. and A.R.A.

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TEACHERS, CERTIFICATION OF.

In general, teachers are required to have certificates in order to hold positions in the public schools and receive public money in compensation for their services. The most frequently used current basis for certification is the success achieved in appropriate courses, usually of college grade. An older type of certificate generally authorized its holder to teach in any school in the state, and in any department from the kindergarten to the twelfth grade. In contrast, current certificates are more specific authorizations to teach one or more definite subjects or in such departments as kindergarten-primary or senior high school.

Probationary Certificate. A probationary certificate is granted on more limited qualifications as to experience, training, or both, than the highest professional certificate.

of its class. The usual distinction between it and the permanent or unconditional certificate is that the probationary one expires in one, two, or more years, and is renewable for either another specified period or for life, on evidence of professional growth. Frazier reports a marked tendency, in recent revisions of certification requirements, to issue initial certificates to teacher-training graduates on a probationary rather than a permanent basis. The term used here should not be confused with the probationary period of employment of some teachers in city schools.

Life Certificate. As the term implies, a life certificate is ordinarily valid for the teaching life of the holder. However, the implication that the teacher should be able at all times to render efficient service has led to such limitations as a specified age for retirement. Moreover, some regulations provide that after specified periods of disuse of the certificate, the holder must take refresher courses or otherwise show evidence of teaching ability and current professional knowledge and ability, in order to re-enter teaching.

State Certification. State certification exists in the various states, with a few exceptions. In Massachusetts, the town committee keeps full power over certification, although the state issues some certificates to certain groups of teachers and administrators. In California, counties share with the state in making and scoring teacher-examinations, and issue some certificates on the examinations they have administered. Counties may issue certificates, under state control, in Arkansas, Illinois, Mississippi, and Missouri. A few cities located in twelve states, and certain colleges in nine states continue to issue their own certificates.

Reciprocity in Certification. Reciprocity among states in certification of teachers refers to the practice in which a state issues a certificate to an applicant on the basis of an equivalent one which he holds from another state. He may be asked to submit evidence concerning his preparation to help determine whether the two certificates are equivalent. Seemingly because it is regarded as more difficult to determine the equivalence of certificates than it is to evaluate the credits earned in college courses, the latter basis is superseding the former for the issuance of certificates to out-of-town applicants. The number of states that issued cer-

tificates on an exchange basis declined from thirty-eight in 1921 to eight in 1940.

Supervisory Certificate. A recognition of the specialized character of the duties and the training desired of those engaged in supervisory and administrative work has led to the issuance of supervisory certificates. Frazier reports the number of states issuing such certificates as one in 1906 and thirty-one in 1937.

Examination for Certification. In older practice, teachers' certificates were issued to those who were successful in examinations, usually of the essay type. The frequency of this procedure has declined. Frazier reports that only twenty states in 1937 were issuing certificates on examination and only to a small number of persons. However, some large cities, of which New York is an example, use this method of teacher selection. The prerequisite amount of education for admission to teachers' examinations varies from none in a number of states to the possession of a master's degree or its equivalent in other states. (See **TEACHERS' LEGAL STATUS; TEACHERS, APPOINTMENT OF; TEACHERS, SELECTION OF.**) A.V.O.

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TEACHERS, COLLEGE—See **COLLEGE FACULTY**.

TEACHERS COLLEGE. An institution for the education of teachers that usually requires high school graduation for admission, offers four years of college grade work, and grants a bachelor's degree at the end of the course. Teachers colleges began to replace the normal schools (*q.v.*) after 1900 and increasingly after 1920. Many new institutions were founded during this time and many normal schools became teachers colleges. The increasing need for more and better prepared teachers after 1900 when the school enrollments of the country expanded rapidly made

necessary the elevation of standards for the teaching profession and resulted in the teachers college movement.

It was clear that prospective teachers needed more than two years of high school before entrance to a professional school, and it was also clear that two years of professional preparation were too little. Students did not have enough time to acquire a good general education in addition to the professional study of education. Therefore, the changes that were involved in the teachers college movement included raising the entrance requirements to four years of high school work, making provisions for the education of secondary school teachers, and lengthening the professional course of study to four years in order to embrace a broad general education as well as mastery of subject matter and an understanding of educational principles and methods. Experimental research and advanced investigation in many areas of teachers college education after 1890 have increasingly built up a resource of organized knowledge and experience that has enhanced the preparation of teachers and made possible the raising of the standards of the profession.

These changes are reflected in the tendency of present-day educators to refer to "teacher education" (*q.v.*) rather than to "teacher training" which connotes a narrow training in skills and pedagogical methods. The trend to teachers colleges is revealed by the fact that in 1920 there were 46 teachers colleges, by 1928 there were 137, and by 1941 there were 185 accredited teachers colleges, most of which were state teachers colleges. Forty-two states have established state teachers colleges; among the most important of the private institutions are Teachers College at Columbia University and George Peabody College for Teachers in Nashville, Tennessee. Many of the teachers colleges, in addition to the bachelor's degree, award the master's degree and a few, the doctor's degree.

The curriculum of the teachers college has expanded to keep pace with and even to lead the expansion of educational services in the schools of the country. The curriculum of a large teachers college includes a wide range of courses to meet the needs of regular teachers in all areas of the elementary schools and secondary schools, of administrative officers

on all levels, and of special functions of many kinds. In addition to the subject matter fields a teachers college offers work in the foundations of education common to all educational workers (philosophy, history, psychology, and sociology of education); work in special branches of curriculum, administration and guidance in different types of schools and institutions; and opportunity for observation, participation, and practice in actual teaching situations. R.F.B.

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TEACHERS' CONTRACTS. The teacher's contract creates and conditions the teacher's status, and justifies her power to act *in loco parentis* (*q.v.*). The legal status varies from state to state, and within a state among different types of districts. Some states have standardized contract forms for local school boards, and others have no contract forms at all. Some contracts are short simple documents, while others enumerate scores of duties imposed upon the teacher. In some states there is no control over the power of the local school board to contract with teachers; other states control the power of appointment and dismissal, and stipulate specific items to be included in the teacher's contract. Universally, some type of certificate is required of a teacher (See **TEACHER'S LEGAL STATUS**). Whether the certificate must be available at the time of entering the contract or merely prior to starting teaching is frequently a matter of statutory language.

While there are some special aspects about teacher's contracts, the general law of contracts applies to them. As in all cases, the contract must comply with any specific statutory terms, as to form, debt limitations, and the like. While most statutes require that the teacher's contract be in writing, apart from statute an oral contract is generally valid. Other normal contract law rules also apply. It must be definite; if the salary is left to

future agreement, it is too indefinite. The parties must be competent to contract. This means that the contract must be approved by the school board, *as a board*, and not merely by its members individually. Nor can approval of the contract be delegated to the superintendent. There must be adequate consideration, as well as an offer of employment and its acceptance. Also, and of great importance, are the "silent terms" of the contract, the statutory provisions and the board's rules and regulations, which are parts of the contract even although not specifically mentioned.

Types of Contract—Tenure. In general there are two types of teacher's contract laws, one of statewide application, the other of local application. Among the *state-wide and uniform laws*, there are few characteristic types: (a) annual elections of teacher, or a complete absence of all legislation, in which event the annual election procedure is generally followed; this exists in eleven states; (b) long-term contracts, which may be awarded for periods of more than one year, exist in two states; (c) the continuing contract, whereby a teacher continues for the next year if she has not received notice of termination by a given date. This type of statute, which exists in some ten states, carries no assurance of security because it does not forbid dismissals without cause or for arbitrary reasons, but merely makes the school board act within a specified time. Some of the more recent continuing contract laws really are permanent tenure laws in effect; (d) permanent tenure after a probationary period of from one to five, but generally, three years with dismissal only after notice of cause, and generally on hearing and trial. This type of law exists in seven states. *Non-uniformity applicable* provisions in eighteen states carry different combinations of tenure in some regions of the state, optional tenure in others, mixed with continuing contract and annual election programs in still other parts of the state.

In addition to state systems, there are two types of local tenure plans. In ten states, there are state statutes creating local tenure plans applicable to particular localities only, and in at least nineteen cities local tenure has been created by local action.

According to a June 1942 study of the Na-

tional Education Association, city teachers, generally speaking, have some form of tenure protection in thirty-seven states, and rural teachers, in twenty-four states.

Permanent tenure legislation is of recent development and is intended to free teachers from political, personal, or commercial domination, to protect them against unjust and arbitrary dismissal, to provide some reasonable personal and academic freedom, and to encourage experienced teachers to remain in their profession rather than seek other and more remunerative employment. It has been universally upheld as constitutional. In some places, it has been unpopular with school boards who have sought to circumvent its effect by requiring signed but undated resignations, or have dismissed teachers before the completion of probationary terms so as to prevent the vesting of tenure. Such practices have been declared improper in at least two states: *Hosford v. Board of Education of Minneapolis*, 201 Minn. 1, 275 N.W. 81 (1937); *Briney v. Santa Ana H. S. Dist.*, 131 Cal. App. 357, 21 Pac. (2) 610 (1933).

Where tenure laws are set up in terms of contracts, they partake of the protection of the contract clause of the federal constitution (See EDUCATIONAL LAW AND LEGISLATION; DARTMOUTH CASE; TENURE) and are thus immune from subsequent legislation. *State ex rel Anderson v. Brand*, 303 U.S. 95 (1938).

The latest available figures, prepared by the National Education Association as of May 1, 1942, show that 44.6 per cent of the teachers in the country have tenure protection; 20.9 per cent are under continuing contract plans; 7.1 per cent under long-term contract arrangements; 6.6 per cent are subject to annual election; and 20.8 per cent are at the mercy of boards subject to no legislative restrictions.

Dismissals. Apart from statutory restrictions, boards generally have the power to dismiss teachers. But even in the absence of statutory protection, it is widely held that such dismissals before the end of the contract term must be for cause and cannot be arbitrary. Tenure statutes place controls upon the school board's untrammelled right of dismissal, generally restricting dismissals to those cases involving causes which are enumerated in the statute. Commonly specified causes for removal include: disobedience of board rules,

if the rules are reasonable and within the board's authority to adopt; incompetence, in which case the burden of proof is upon the school board; neglect of duty; misconduct; and immorality (in some cases it has been held that a mere charge of immorality is sufficient cause). The states are in conflict as to whether, apart from statute, marriage is cause for dismissal; in tenure cases the majority view seems to hold that it is not.

Courts have had occasion to review dismissals of teachers for political activity. Merely by becoming a teacher, one does not lose his rights of citizenship or of the free expression of his religious, social, political, or other convictions. Apart from the restrictions laid down in such legislation as the Hatch act (*q.v.*), teachers may engage in political activities outside of the classroom. The troublesome issue arises when the dismissals are attributable to membership in political or other groups espousing nationally or locally unpopular views, e.g., communism, socialism, pacifism, evolutionism, or equality of races. Normally, such teachers are dismissed on fictitious charges of incompetence, disobedience, or some other alleged statutory ground for dismissal. Judicial affirmation of such dismissals—whether for the truthful or the fictitious reason, or for indefinite causes admittedly unrelated to classroom efficiency—is destructive of that security and independence so essential to the full performance of a teacher's function in a democracy. (See ACADEMIC FREEDOM.)

Generally, tenure statutes assure teachers of the right to a notice of the charges and the opportunity for a hearing before dismissal; where such rights are allowed, no dismissal can be made legally without following the statutory procedure. Where the statute gives no right to a hearing but specifies causes for removal, it has been held frequently that a hearing is still necessary. The procedure in such hearings is informal and unfettered by technical rules of evidence.

Damages. An improperly dismissed teacher may recover damages sustained thereby, which under normal circumstances could be the contract salary. However, a dismissed teacher is under a duty to mitigate these damages to the best of her ability by making reasonable efforts to obtain work of the same general character if not too remotely situated

from home. A dismissed teacher cannot refuse to take other similar employment and expect to recover the whole amount of her contract salary. Any such other earnings during the original period of the contract must be deducted from the contract salary to reach the amount of allowable damages.

Where a teacher who has earned tenure has been dismissed improperly she is entitled not only to damages, but also to reinstatement to her former position. Tenure is not only a guaranty against arbitrary dismissal, but is also a protection against arbitrary or unreasonable demotions, although tenure does not freeze teachers into specific jobs or assignments.

Abolition. If a contract is for a definite term, it is generally held that the position legally cannot be abolished prior to the termination of that term. However, tenure rights do not bar abolition of a position, if done in good faith. In some laws, priority of re-employment is guaranteed to teachers with tenure whose positions have been abolished. (See TEACHER'S LEGAL STATUS.) H.N.R.

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H. N. ROSENFELD, *Procedure on Appeals to State School Authorities*, New York University School of Law, Contemporary Law Pamphlets, Series I, No. 35 (New York University Law Quarterly Review, New York, 1942).

TEACHERS' COUNCIL—See COUNCIL, TEACHERS'.

TEACHERS CREDIT UNION — See LOAN FUNDS.

TEACHERS' HANDBOOK. So that teachers may constantly evaluate their professional knowledge and have a book for quick reference to information needed in the teacher's daily tasks, there is a real need for a compact compilation of important facts, principles, theories, and data in each of the various phases of education. It is usually the purpose of a teachers' handbook to meet these needs. A good example of such a handbook is the one written by Elsbree, Halsey, and Elsbree.²

Another purpose of the teachers' handbook

is that of stimulating teachers and others interested in the profession to further study in the field of education. Such purposes as providing a means for self improvement among teachers, stimulating parent-teacher association programs, and serving as a ready reference for students in education are proposed for such books. The usual contents of these handbooks are in the form of brief statements which frequently consist of questions and answers. Those handbooks which are written by boards of education, superintendents, and teacher committees generally consist of a list of directions, suggestions, statements of policy, and rules of the school system.¹

D.H.C. and A.R.A.

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2. W. S. ELSBREE, H. R. HALSEY, E. S. ELSBREE. *The Teachers' Handbook* (Teachers College, Columbia University, New York, 1929).

TEACHERS' HEALTH. A survey of the studies of the health of teachers shows that men are absent less frequently and for shorter periods than women. Ailments peculiar to women have little bearing on teacher absence.

Great inconsistency is shown in the relation of sickness rate to age. In some cities the rate increases steadily with age; in others there is no correlation between age and illness; and in still others the rate declines with increase in age. On the whole, however, the weight of evidence seems to indicate that the sickness rate of school teachers increases slightly with age.

So far as the death rate is indicative of the level of health, teachers, as a class, are remarkably healthy. When the number who are sick and the length of absences are compared with similar records of industrial workers and clerical groups, the health record of the teacher remains superior. The most frequent causes of teachers' illness are diseases of the respiratory system, such as colds and influenza, although teachers are not more subject to these diseases than are other indoor workers. The opportunity for contagion in the classroom makes the incidence of colds more serious among teachers than among workers in shops and offices. Illness caused by digestive disorders is less common among teachers than among workers in other fields. Tuberculosis

does not appear to be significant among teachers, but laryngitis is considered by some health specialists as a true occupational disease of teachers. Tonsillitis is also a common cause of absence.

Long expensive illnesses are relatively infrequent among teachers. Nervous disorders are more common among women than among men. Absences due to nervous disorders increase with advancing age.

On the whole, the teacher has a relatively good chance for a long life and a comparatively low sickness rate in comparison with workers in other fields. The "average teacher" will have a succession of minor ailments in a life comparatively free from serious risks.¹

A recent report indicates that 23 per cent of classroom teachers are in excellent health, 46.5 per cent are in good health, 10 per cent are in fair health, 5 per cent are low in vitality, while 2.5 per cent are in chronic ill health.² (See **TEACHERS' ABSENCE**.)

D.H.C. and A.R.A.

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TEACHERS' INSTITUTE—See **TEACHERS' MEETING**.

TEACHERS' INSURANCE. A plan whereby teachers are guaranteed a financial payment or indemnity for chance occurrences such as loss of job, loss of health, or injury; and the payment of a stipulated sum to a specified beneficiary in the event of death may be called *teachers' insurance*.

Under the group plan, teachers are insured as a group rather than individually; the rates are lower, and the protection is less satisfactory. Many teachers have found the group-insurance plan less satisfactory than a good state retirement system.²

Whereas industrial employers may require all their employees to enroll for group insurance, such compulsion is impractical for teachers. Teachers' membership in group insurance plans has always been voluntary despite the resultant difficulty of maintaining a sufficiently large group. In industry the employer usually contributes to the payment of the group-insurance premium, but teachers

usually pay the total cost of their own group insurance.³

Some of the advantages of group insurance are (a) all members of the teaching group are usually eligible without a medical examination, (b) teachers are usually permitted to convert their policies to ordinary insurance upon withdrawal from the staff or, in some cases, from the profession, (c) in most systems new members may enter at any time, (d) the typical group health-and-accident insurance policy covers every disability of the entire teaching personnel.³

Some of the disadvantages are (a) the insurance company usually reserves the right to cancel the master policy; (b) younger teachers are seldom interested in group insurance, and may be able to buy individual insurance at a cheaper rate; (c) in many instances, teachers must give up their group insurance upon retiring from active teaching.

As for individual insurance, the commercial companies naturally try to sell the type of insurance that is most profitable. Teachers should realize this fact and ask themselves certain questions such as the following before purchasing insurance: What are my insurance needs? Which is more economical, the stock or mutual type of insurance? If I cannot purchase all the insurance which I need, which type should I purchase first?

One of the worst threats to economic security is permanent disability. Commercial companies offer so many types of coverage against loss of income from disability, both temporary and permanent, that it is difficult for the teacher to know when he is getting adequate protection. Most of the policies for accidents are not only written for a limited period of time, but may be cancelled at the option of the company. Cancellation of insurance against disability should not be allowed; income should be guaranteed for life; premium payments should be waived during disability; waiting periods after disability should be short; and agreement as to what constitutes disability should be clear.¹ (See **TEACHERS' ANNUITIES, TEACHERS' RETIREMENT, and TEACHERS' INSURANCE and ANNUITY ASSOCIATION OF AMERICA.**) D.H.C. and A.R.A.

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3. Studies in State Education Administration, "Group Insurance for Teachers," N. E. A. Research Division, Study No. 3, Feb., 1930.

TEACHERS' INSURANCE AND ANNUITY ASSOCIATION OF AMERICA.

The function of the Teachers Insurance and Annuity Association of America is to issue and administer life insurance policies and annuity contracts for staff members of colleges and universities in the United States, Canada, and Newfoundland. It is a non-profit organization which was originally endowed by the Carnegie Corporation but is now under no obligation to this corporation. (See **TEACHERS' ANNUITIES, TEACHERS' INSURANCE, and TEACHERS' RETIREMENT.**)

D.H.C. and A.R.A.

Reference.

Handbook of Life Insurance and Annuity Policies (T. I. A. A., July 1, 1941).

TEACHER'S LEGAL STATUS. The teacher is surrounded by all sorts of statutory, administrative, and customary provisions which condition the performance of duty.

Certification. All states now require teachers to possess certificates or licenses issued by appropriate authorities, generally the State Board of Education or State Superintendent, before they may be permitted to teach. Recent years have witnessed a tendency toward centralization of the certification functions; in 1893, teaching certificates were issued by state-wide agencies in only 3 states, but by 1933, 39 states operated on a centralized basis. With this movement has grown another for the raising of requirements for licensing and for differentiation of certification requirements. While local communities may establish additional qualifications, normally the state requirements are determinative. Among the general requirements, over one-third of the states prescribe citizenship, and over one-half a certificate of good health; generally, a high school education, and an age of 18 years is necessary, although frequently college education is now required. Professional requirements are of varied sorts; courses in school law and in state or federal constitutions and history typify one form of course content, while subject matter and methodology courses typify another. Occasionally, examinations are given to test professional competence, but

TEACHER'S LEGAL STATUS

by and large certification is based on credentials; reciprocity of certification among states is not as common as it might be. Renewals of certificates are frequently based on continued in-service education. The power of revocation of certificates generally exists in state authorities, and in about one-quarter of the states in local authorities. (See **TEACHERS, CERTIFICATION OF.**)

Salaries. About 24 states have some type of mandatory minimum-wage salary laws for teachers, slightly over half of which are of state-wide application. Most of these laws were enacted during and following the First World War, when a serious emergency was caused by teacher scarcity. There is a widespread practice of establishing salary differentials based on sex. Although as early as 1914, the National Education Association went on record as being opposed to such differentials, only ten states have adopted laws forbidding such discrimination against female teachers. Provisions common in some states setting up different salary schedules for white and colored teachers have been declared unconstitutional [*Alston v. School Board of City of Norfolk*, 112 Fed. (2) 992 (1940), *cert. den.* 311 U. S. 693 (1940)]. And while there has been an increase in salary levels from an estimated average annual earning of \$256 in 1890 to an estimated average annual salary of \$1,360 in 1940, the increase does not compare favorably with the general increase in wages except in the last decade. The general low level of teachers' salaries, particularly in rural areas, is one of the reasons usually given for the large turnover of teachers. (See **TEACHERS' SALARIES.**)

Pensions and Retirement. Retirement laws differ among states; but in general actuarially sound systems provide for mutual contributions to the fund by the teacher (almost universally in terms of a given percentage of salary) and by the state (in equal amount).

The constitutionality of teachers' pension systems has been upheld as a means of obtaining a better type of personnel through assuring the teacher and his dependents some degree of security on superannuation or disability. By 1940 there were 33 state-wide pension or retirement systems, and at least 65 local ones in 26 states, 9 of which have

no state-wide system, all together covering some 65% of the teachers of the country. In many of these, the retirement benefits are very inadequate. There is no general uniformity among these various systems, some of which are not even on a contributory basis and many of which leave much to be desired in soundness; only eleven have a compulsory retirement age. Few systems include non-certificated school employees or the professional staffs of state universities or teachers colleges. (See **TEACHERS' RETIREMENT.**)

Working Conditions. The teacher operates in terms of not only her contract, but also the school code and the school board bylaws and regulations, although she may never have seen either of them. This means that her contract has read into it all the requirements of the statutes and state board regulations, and all the restrictions of the local board's rules. Some of these rules impinge very heavily upon the personal and private life of the teacher. Among administrative "blue-laws" are local contract provisions forbidding teachers to keep company with "sorry young men," provisions whereby the teacher agrees not to attend dances, and not to marry; other contracts require the teacher to spend week-ends in town "except at such intervals as the superintendent may designate." Other contracts regulate the length of skirts and the amount of rouge and lipstick. Perhaps the prize one requires a teacher to sign a statement: "I promise not to fall in love." Owing to the insecurity of so many American teachers, teachers are helpless against school boards which regard appointments as favors. No warrant exists in law for it, but it is well-known that appointments frequently are dictated by such personal considerations as religious beliefs, nationality, kinship to influential board members, and marital status, rather than by professional consideration. For many teachers there is no such thing as privacy or the development of an individual personality; the teachers' social and intellectual activities are closely restricted. However in school systems where appointment is on the basis of examinations similar to those in the civil service there is less danger of these conditions existing.

Some school boards insist upon what is

known in labor circles as a "yellow-dog" contract. These agreements not to join a labor union have been upheld [*Seattle H. S. Chapter of American Federation of Teachers v. Sharples*, 159 Wash. 524, 293 Pac. 994 (1930)].

Some communities have been sustained in their refusal to employ married women as teachers and in the dismissal of female teachers who married after they were employed. Such policies have found widespread condemnation, and seem to be likely to diminish at least during periods of shortages of teachers. (See also HATCH ACT; IN LOCO PARENTIS; LIABILITY; LOYALTY OATHS; TEACHERS' CONTRACTS; TEACHERS' STATUS.)

H.N.R.

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TEACHERS' LICENSE—See **TEACHERS, CERTIFICATION OF**.

TEACHERS' LOAN FUNDS—See **LOAN FUNDS**.

TEACHERS' MEETINGS. To facilitate the general administration of the school and to improve the teachers in service constitute the twofold function of a typical teachers' meeting. General professional meetings, grade meetings, professional-study meetings, and departmental or subject-matter meetings are, in general, the most frequently held types of teachers' meetings. The first type (professional meeting) is in some places called the *teachers' institute*. This is the name given to the type of meeting in which the teachers report for duty one or more days before school opens for the purposes of orientation, formulation of aims and objectives, and outlining methods of procedure. In some schools, meetings of this sort are held periodically throughout the session, while in others they are held only at the beginning of each session of school. All teachers in the school are expected to attend these meetings. A part

of the time is generally used for becoming better acquainted.¹

When problems arise which are peculiar to the teachers of a particular grade (fourth-grade teachers, for example) the supervisory officials may call what is termed a *grade meeting*. Such meetings obviously are practical only when there are at least 8 or 10 teachers in a given grade. The type of meeting in high school which corresponds with the grade meeting in the elementary school is known as the *departmental meeting* or *subject-matter meeting*. Where there is departmentalized teaching in the elementary school there is occasion for the subject-matter type of meeting.

The professional-study meeting usually centers about some problem which should be approached from the point of view of both theory and practice. The teaching of reading, for example, can be studied intensively at a given number of meetings. The best prepared teacher in the field may conduct the program of the meeting. This instructor may ask the other teachers questions, give them assignments, and call upon them for reports. The problem is usually selected by the common consent of all concerned.

Of the many methods used in conducting teachers' meetings, some are more effective than others. The following methods were reported in the *National Survey of the Education of Teachers*: 1. scheduled addresses by local staff members; 2. scheduled addresses by "outside" speakers; 3. group discussion led by local staff members; 4. group discussion led by an "outsider"; 5. scheduled addresses and group discussion by local staff members; 6. scheduled addresses by "outside" speakers, followed by group discussion; 7. demonstration teaching with a group of children by local staff members, followed by discussion; 8. demonstration teaching with a group of children by an "outsider", followed by discussion; 9. "clinical" demonstration by local staff members of a process or an activity not involving teaching problems; for example, keeping attendance records, explaining technicalities of radio transmission and reception, constructing a bulletin board; 10. "clinical" demonstration by an "outsider" of a process or activity not involving a teaching problem; for example, the preparation of a case study of a pupil referred to a child guidance clinic; 11. exhibits of books, equipment, special materials of instruction or

pupils' work, conducted by local staff members; and 12. exhibits of books, equipment, special materials of instruction or pupils' work, conducted by "outside" agencies.

D.H.C. and A.R.A.

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2. U. S. Office of Education, *National Survey of the Education of Teachers*, Bulletin No. 10, 1933; V: 291 (Washington, D. C.).

TEACHERS, MENTAL HYGIENE OF —See MENTAL HYGIENE.

TEACHERS' PENSIONS — See TEACHERS' RETIREMENT.

TEACHERS, RATING OF. In order to promote teaching efficiency, to improve teachers in service, to help determine teacher promotion and dismissal, to aid in supervision, and for other reasons, many superintendents feel that it is desirable to rate teachers. To promote teaching efficiency is usually considered the most important of these purposes for rating.

It is the duty of the superintendent to rate the teachers, since their selection is his responsibility. In actual practice, however, superintendents select the majority of teachers, but the principals and supervisors usually rate them. Teachers are also rated by their pupils, teaching colleagues, school patrons, the public in general and boards of education. Frequently teachers rate themselves.³

Teacher rating, in spite of the difficulty involved, is still a useful tool in the hands of a skilled rating official who can use it wisely. Many school officials are recognizing the fact that teachers can profitably be encouraged to rate themselves. It is significant that there is a low correlation between teachers' self-evaluation and principals' evaluation of the same teachers.²

A *score card* is a type of rating device whereon definite numerical values are assigned to each factor, and the rater checks the number which best expresses his opinion of the teacher as regards the factor. *The Carrigan Score Card for Rating Teaching and the Teacher*, prepared by Rose A. Carrigan and published by World Book Company, 1930, is a good illustration of score cards by which teachers are rated. (Items below quoted by permission of the publisher). It represents one form of the impression method.

The Carrigan Score Card presents a series of questions on the teacher's traits and procedures to be answered by the supervisor. The score card is divided into two parts: *Part I, Teaching*, and *Part II, The Teacher*. Part I is further subdivided into three major factors: *A. The Background or Workshop*; *B. The Work*; *C. The Child*. For each factor there are a number of specific questions to be answered. Thus, *The Work*, for example, is evaluated in terms of eight separate questions: *I. Was the subject matter, so far as it was under the control of the teacher, worthwhile?* *II. Was the specific aim apparent, definite, and of sufficient worth?* *III. Was the organization good?* *IV. Was all the time profitably employed, thus indicating that the teacher had a proper sense of values?* *V. Did the proportion of individual response in the class prove the teaching successful?* *VI. Was the work wholly cooperative, or merely a guessing game in which the children tried to find out what answers the teacher wanted?* *VII. Was there a checking of results?* *VIII. Was there suggested any vital connection with a future activity?* Though the items to be rated appear as questions, the responses are to be expressed in numerical terms. In answer to the question, "*Was there a checking of results?*" the supervisor is expected to give the teacher a score ranging from zero up to a maximum of forty. Not all questions are equally important in determining the final rating. The question "*Were there attempts to beautify it (the room) in any simple, inexpensive way?*" has a maximum score of 15 while the question, "*Was there a satisfactory proportion of individual children who, throughout the entire period, were absorbingly interested in the work and were putting forth effort?*" has a maximum score of 100. These maximum scores represent the value which the author of the score card attaches to the influence which the rating on that question should have in determining the total score.

The tendency, however, is towards the use of rating scales and away from the score card. A *rating scale* is a device for comparing the efficiency of the teacher in a school system with the other teachers or with an accepted standard. The Tuscaloosa County (Alabama) Teachers Association, for example, has prepared a *Teacher Rating Scale* to be used in the Tuscaloosa County Schools.

This scale is planned in terms of eight major categories; namely, *I. Personal Characteristics; II. Ability to Plan and Teach; III. Classroom Management; IV. Professional Status; V. Extra-Curricular; VI. Promptness; VII. Professional Memberships.* Each of these aspects of the teacher's ability is evaluated in terms of a number of more specific items, each of which is rated on a five-point scale ranging from *superior to good to average to fair, to poor.* Thus, *Personal Characteristics* has twelve items as follows: 1. *Personal appearance; 2. Voice and speech; 3. Emotional stability; 4. Initiative and originality; 5. Ability to plan and execute; 6. Willingness to work and accept responsibility; 7. Loyalty and co-operation; 8. Attitude toward supervision; 9. Enthusiasm; 10. Consideration for pupils; 11. Health; 12. Tact.*

Rating Scales have also been prepared for administrators and supervisors.¹ On the rating scale which San Francisco (California) uses for measuring the efficiency of administrators there are six major categories: *I. Personal Characteristics; II. Leadership; III. Professional Qualifications; IV. Clerical Work; V. Administration; VI. Supervision.* The administrator is rated with respect to each of these six categories by means of a five-point scale; namely, 1. *Outstanding; 2. Very Good; 3. Satisfactory; 4. Unsatisfactory; and 5. Failing.* To assist the person who is to rate the administrator, there are listed a number of specific factors which should be considered; provision is made for including other factors, too, in the rating. For example, under *V. Administration*, the following factors are indicated: 1. *Ability to understand problems and to make prompt decisions; 2. Check on attendance and tardiness; 3. Classification of pupils and assignment of teachers; 4. Control of pupils (order and discipline); 5. Curriculum adjustment; 6. Distribution of books and supplies; 7. Effective use of building (rooms, library, auditorium); 8. Guidance of extra-curricular activities; 9. Health program; 10. Plan for janitorial service; 11. Program making; 12. Safety program; 13. Sense of order and system; 14. Traffic control (in building or out of building); 15. Understanding of relative values; 16. Upkeep and appearance of building; 17. Use of yard and play facilities.*

The preparation of score cards and rating

scales for rating teachers and administrators stems from the widespread dissatisfaction with traditional methods of rating which rested so largely on the superior officer's vague likes and dislikes, sometimes with respect to traits which are unimportant or even irrelevant. At the very least, these scales improve ratings by indicating the factors which should be considered when teachers and administrators are evaluated. The specificity of the items and the ratings reduce, to some extent, the complete subjectivity of the ratings, even though they do not necessarily lead to absolutely objective ratings. That the total score can usually be analyzed in terms of ratings on specific items facilitates diagnosis of failure and also the planning of a corrective program.

It is generally agreed by those who have used rating scales and score cards for teachers and administrators that these measuring instruments have improved the rating process but that there is room for even further improvement. Unless criteria are suggested as the basis for judgment, the ratings continue to represent the judge's personal opinion. Thus, what one judge considers superior initiative and originality may be considered by another to be only average. Some critics have protested that these scales are inadequate, for they include only these traits that are readily rated in numerical terms. They point, for example, to the fact that some rating scales overlook such significant and intangible traits as the teacher's ability to inspire genuine and persisting interests in significant problems, and his influence on the development of other eminently desirable traits in his students. There is always danger that the use of a rating scale may keep the superior teacher from going beyond the current conception of what a good teacher is. On the whole, any system of teacher ratings is more effective when it is used as part of a larger program for teacher improvement than when it is used solely as a basis for classifying or grading teachers with respect to their ability. D.H.C. and A.R.A.

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TEACHERS' RETIREMENT. In order to protect pupils by removing inefficient, disabled, and senile teachers, to give teachers a sense of economic and social security, and to attract exceptional students to teaching, more than fifty per cent of the states, and Hawaii, have set up well-organized systems of teacher retirement. Although the majority of the teachers in the United States are protected by some type of retirement system, a large number of teachers still have no such protection.

Colleges and universities, too, have their retirement plans. Beginning with Colorado colleges in 1890, the movement spread until by 1934, 23 per cent of all such institutions in the United States and Canada, employing 47 per cent of the college teachers in these two countries, were making some provision for teachers' retirement. The following plans are in operation among colleges: (1) group contracts with commercial insurance companies; (2) the Carnegie free pension plan set up in 1905, which is now limited in its application; (3) the Teachers Insurance and Annuity Association (*q.v.*) incorporated in 1918, which is a cooperative plan of deferred annuity payments; (4) state teacher retirement systems which include the higher educational institutions under state control; (5) church pension and retirement plans which are open to ordained ministers who serve on the faculties of the colleges affiliated with such churches; (6) plans organized and administered by and within individual institutions. Frequently the benefits of college pension and retirement plans are open to other than faculty members.

Teachers' retirement plans can be divided into three major groups: the free plan, or pension, wherein all payments to teachers are made from the general fund; the contributory, or mutual-benefit plan, in which the retirement fund consists of the accumulated teacher contributions; and the joint-contributory plan, which consists of contributions from both the teacher and the employing body.

The word *pension* is properly used to refer to the financial reward given to individuals who retire from the school system or from the profession. The teacher makes no contribution to the pension fund out of his salary. A teachers' annuity fund or a teachers' retirement fund, to which the teachers contri-

bute out of their salary, is sometimes referred to erroneously as teachers' pension.

The courts have held that teacher-pension legislation does not violate the Fourteenth Amendment; that it does not constitute class legislation, because teachers are a class set apart by their vocation; and that pensions do not constitute the expenditure of public funds for private purposes, because education is a public purpose.

The current drift is away from the pension or outright grant and toward contributory plans wherein the teacher shares the cost, for this has proven more satisfactory and financially more successful.

The present tendency is to set arbitrary age limits for optional retirement, usually 60 years after approximately twenty-five years of service. The age for compulsory retirement is 65 or 70. The practice of requiring those who teach beyond the optional age limit to pass a medical examination is increasing.

Two of the chief weaknesses of the state teacher-retirement systems are the unsound reserve basis of many of the systems and the failure to provide for periodic actuarial check-up. Thus, one state system has all its reserve funds invested in the securities of the state. (See **TEACHERS' ANNUITIES; TEACHERS' INSURANCE; TEACHERS INSURANCE AND ANNUITY ASSOCIATION OF AMERICA.**)

D.H.C. and A.R.A.

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TEACHERS' SALARIES. The average salary of teachers in the United States in 1913 was \$512, which was 60 per cent less than the average income per person gainfully employed. Teachers' salaries, along with those of other public employees, increased steadily during the middle 1920's but remained from 20 to 25 per cent below the national average income per person gainfully occupied. The low point for gainfully employed workers came in 1933; for teachers, in 1934.¹

As compared with the earnings of salaried and wage-earning persons, the earnings of teachers are definitely below those of salaried workers and slightly above wage earners. For all city teachers the average salary in 1940 was 7 per cent higher than in 1929. For rural teachers the average salary in 1940 was still 7 per cent lower than in 1929. Throughout the entire depression period, the average salary for teachers was lower than the average salary of all federal, state, or city government employees.

During the period 1935 to 1940, price levels were more or less stable, but beginning in 1941 prices began to soar rapidly. Teachers, whose average salary has risen more slowly than the cost of living, have been and still are suffering an increasing loss in purchasing power. The salary that was worth \$1,000 before October 15, 1941, was worth only \$914 on November 29, 1941. This decrease in purchasing power is increasing at an accelerated rate so that before the end of 1942, unless teacher pay is substantially increased, there will be further significant shrinkages in the purchasing value of teachers' salaries.¹

Notwithstanding the increasing use of single-salary schedules, secondary school teachers continue, on the average, to receive higher salaries than do elementary school teachers. The average salary of elementary school teachers in cities is 13 per cent less than the average for junior high school teachers, while senior high school teachers average 22 per cent more than teachers in the elementary schools. In rural areas the single woman teacher who is rooming and boarding has an average total income of \$830; the married man teacher who rents a home has an average total income of \$1,400. On the average, urban teachers receive \$1,900 annually, rural teachers \$830. In

accordance with estimated average earnings during a working lifetime, public school teaching has been ranked 11th among a group of 16 occupations.²

Occupations ranked above public school teaching are medicine, law, dentistry, engineering, architecture, college teaching, social work, journalism, ministry, and library work. On the same basis, occupations falling below public school teaching are the skilled trades, nursing, unskilled labor, farming, and farm labor.

Single Salary Plan. There are, in the main, two distinct types of salary schedules for teachers. In the position-automatic type of schedule, the teaching position in a school system, rather than experience and preparation, determines salary, while in the single-salary plan the same salary is paid to all teachers who render approximately equal service and have approximately equal professional qualifications, experience, and preparation, irrespective of their teaching positions. Thus, elementary school teachers are paid as much as are equally qualified secondary school teachers. Under the single-salary schedule, no differential in pay is made between men and women teachers who have about the same preparation and experience. Except in very large schools, the salary schedule is not applied to special employees, principals, and superintendents.

The manner in which these two types of schedules operate is seen from an examination of the following table: In Washington, D. C., an elementary school teacher who is receiving the maximum salary for that position may get a higher salary by being transferred to the high school. In Miami, Florida, however, an elementary school teacher does not receive any more money by being transferred to a high school.

Position-Automatic and Single-Salary Types of Salary Schedules
1941-42

Type of Schedule	City	Training	Elementary School Teachers		Senior High School Teachers	
			Minimum Salary	Maximum Salary	Minimum Salary	Maximum Salary
Position-Automatic	Washington, D. C.	Bachelor's Degree	\$1,400	\$2,200	\$1,800	\$2,800
Single-Salary	Miami, Fla.	Bachelor's Degree	1,020	1,800	1,020	1,800
		Master's Degree	1,120	1,900	1,120	1,900

TEACHERS, SELECTION OF

During recent years there has been a widespread movement on the part of boards of education to adopt a single-salary plan. Of 150 salary schedules adopted recently, 59 have a single-salary plan which makes no distinction between the salary paid to elementary school teachers and that paid to secondary school teachers. According to these schedules men teachers and women teachers of equal training receive equal salaries. In 54 school systems, secondary school teachers are better paid than elementary school teachers, but there is no differential between men's and women's salaries. In the remaining 37 school systems, secondary school teachers are better paid than elementary teachers, and men teachers are paid better than are women teachers who hold similar positions.

Under the single-salary plan, it is difficult to compensate for special merit. The practical impossibility of measuring merit objectively and the difficulty of recognizing superior merit in teachers render the application of the merit principle difficult on the basis of a single-salary schedule.

The single-salary plan has the advantage of making it possible to secure a better teacher for the elementary schools, since under its provisions of equal pay for equal service and equal qualifications, elementary school teachers are paid the same salary as are high school teachers. This schedule also enables the superintendent to reassign his teachers to positions where they will give the best service without jeopardizing their incomes. The single-salary schedule tends to eliminate cliques and helps promote staff unity.

Because it is simple to operate and offers no opportunity for favoritism, unless the merit principle operates in its administration, the automatic type, single-salary, schedule is often favored over the position-automatic type. If the pay is based on position regardless of preparation, however, those who are desirous of promotion will tend to look toward the administrative positions which offer better pay. Where increments are based partly on preparation and experience, it is much easier to retain superior personnel in the departments where they may render the best service.⁴

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TEACHERS, SELECTION OF. Procedures have been developed in large cities which help discover well-qualified teachers and induce them to remain in the teaching profession. Some of these procedures should have a wider use, and newer ones of promise should be developed. The Research Bulletin of the N. E. A. for March, 1942, suggests six steps for the selection and appointment of teachers (1) stating the qualifications and disqualifications that govern eligibility; (2) forecasting the probable needs for new personnel in the near future; (3) assembling applications, both voluntary ones and those secured by recruiting; (4) assembling the written and personal data concerning the candidates; (5) selecting the individuals to be nominated to the board; and (6) appointing of the candidates by the school board.

The school board should state the qualifications desired for various positions. The superintendent should forecast the needs, assemble the applications and data, and select the individuals to be nominated to the board. Appointments should be made by the board only on his nomination. That is done currently in approximately eighty-three per cent of the city school systems in the United States.

In professional practice, the school board states the standard qualifications that are to govern the eligibility of teachers for each type of position and the accepted policies for selecting the personnel. Only qualifications as defined in these standards should be considered in selecting candidates. Local boards must set their standards of eligibility for teachers at least as high as the legal requirements, but may set them higher. However, it is not considered good policy for them to discriminate against non-local residents, older persons, married women, or members of certain races, faiths, or parties.

Standards of preparation for admission to teaching positions are generally higher in larger cities than in smaller places. New elementary school teachers are seldom required to have less than two years of college preparation. Fifty-eight per cent of the cities from 2,500 to 5,000 population require four years of preparation for teaching in elementary schools, and 88 per cent of them require the same amount of preparation for junior high school teachers. Five years of preparation for senior high school teaching is the standard in 28 per cent of the cities over 100,000 in population, but in only 7 per cent of the cities from 2,500 to 5,000 population. A greater number of large cities than smaller ones have maximum age limits for entering the teaching profession. The median limit is close to 40 years for both elementary and high schools. Married women teachers are employed currently in about 40 per cent of the cities. Fifty-one per cent give preference to local residents; this is done to a greater extent in large communities than in smaller ones.

Data collected for 1931 and 1941 suggest a qualitative improvement in the preparation of teachers coincidental with the greater length of time spent in preparation. Standards for certification have been increased by state agencies, by regional accrediting associations, by the selective admission of candidates to teachers' colleges, and by the improved training offered there. Longer professional training is replacing the former emphasis upon previous teaching experience.

The salary committee of the N. E. A. in 1923 opposed the requirement of previous teaching experience for candidates for new teaching positions. It seems inconsistent with the best educational theory to require teachers to receive their initial experience in schools with meager facilities and no supervision, in order to qualify them to teach in larger schools where supervision is well defined. Seventy-one per cent of the cities of more than 100,000 population require no previous teaching experience of candidates for elementary school positions. In senior high schools, 51 per cent of the same cities require no previous experience. A smaller proportion now of the larger cities than of the smaller ones demand previous experience of candidates for teaching positions.

Internships (See INTERNSHIP PLAN OF TEACHER EDUCATION) for teachers have been discussed to take the place of previous teaching experience in other schools. According to one such plan, the candidate teacher would assist during the first year, without teaching; he would teach three-fourths of a regular load during the second year, under the guidance of the master teacher; and he would teach a full load under full supervision during the third year. Deffenbaugh and Zeigel reported in 1932 that about three and a half per cent of the elementary school teachers in the largest cities were new, as compared with approximately one-fifth in cities of less than 2,500 population. Similar proportions for high school teachers were from 4.6 per cent in large cities to more than a fourth in the smallest ones.

After assembling the written applications for positions and separating those which agree with the qualifications set up by the board for the position, the superintendent or personnel officer may use the interview, the written examination, or ratings on other instruments to establish the eligibility of the candidates. The interview, conducted by professional workers trained to employ it, is used to appraise the personality of the candidate, his educational philosophy, and professional outlook. The examination is not used as much as formerly, but is still the practice in a number of larger cities. The names of candidates who are eligible are sometimes set up in a ranked list for each type of position; but the current preference is for unranked lists of all the approved candidates. (See TEACHERS' EXAMINATIONS, NATIONAL; TEACHER RECRUITING; TEACHERS, APPOINTMENT OF.) A.V.O.

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TEACHERS, STATUS OF. The present status of teachers in the United States is far better than in earlier days. Even today, however, teachers generally do not enjoy the recognition to which they are entitled by virtue of their professional studies and the importance of their work.

The standards for entrance to the teaching profession have risen steadily. Little more than a quarter of a century ago, the typical elementary school teacher had less than a high school education; today he or she has had more than three years of college work. The rate at which normal schools are converted into teachers colleges reflects the growing conviction that a college education should be the minimum preparation for teaching. An increasing number of school systems demand some graduate work of prospective teachers, especially of those who are interested in secondary school teaching. The emphasis on in-service education of teachers stems from the recognition of their great need for continuing professional studies. The interest which teachers take in professional activities is indicated to a degree, by the fact that approximately 20 per cent of the public school teachers in the United States are members of the National Education Association, while approximately 75 per cent are members of state teachers' associations.

The status of the teaching profession is reflected, too, in the salary the teacher receives. The average annual salary of classroom teachers in 1913 was a little more than \$500. This average increased to approximately \$1400 in 1930, decreased to \$1200 during the depression of the 1930's, and rose again to \$1400 in 1941. In general, medicine, law, dentistry, engineering, architecture, college teaching, social work, journalism, ministry, and library work rank above public school teaching in salary.

Though the teacher's initial appointment—and even his retention of his position—depend on the judgment of the superintendent and the local board of education as much as on the teacher's personal and professional qualifications, there is evidence of growing recognition of the status of the teacher as a member of a learned profession. State certification requirements set a minimum that even local favorites must meet for appointment as teachers. The National Teacher Examinations may serve as another attempt

to measure objectively some of the teachers' qualifications for appointment. The steady, though slow, spread of tenure legislation (See **TEACHERS' CONTRACTS**) helps assure the teacher that his continued appointment will depend on his professional competence and not on irrelevant considerations. The criteria which determine the teacher's appointment and reappointment, nevertheless, continue to reflect the local community's rather than the educator's conception of what a teacher should be, and many teachers continue to be selected with respect to such matters as their personal smoking habits, political and social views, racial, and religious background.

It is impossible to develop from the hundreds of thousands of public and private elementary and secondary school teachers employed by thousands of different school systems any clear-cut picture of the average teacher today that will be anything more than a statistical abstraction. How much significance should be attached to the facts disclosed by a survey that the median age of elementary school teachers is 27 years? That single men-teachers have rendered a median of four years of school service; single women, five years; married men, nine years; and married women, ten years? On the other hand, the educational sociologist finds it significant that more teachers come from families of median income of between \$2,000 and \$2,500 than from any other economic group. The teacher's family background may help explain why so many teachers experience difficulty in dealing with children who come from families where the standards of values and patterns of behavior are so different from those with which the teacher is familiar.

Despite many efforts to increase the number of men teachers, ranging from the eloquent plea of Phi Delta Kappa that "teaching is a man's job" to the practice, slowly disappearing, of paying higher salaries to men teachers than to women teachers, the overwhelming majority of American school teachers are women. The proportion of administrative and supervisory positions filled by men in the schools is much greater than is the proportion of classes that are taught by men. Whereas 61 per cent of the public elementary and secondary school teachers in 1870 were women, in March 1940, 79 per

cent were women. Because of comparatively low salaries in the schools and considerably higher pay in industrial work, the percentage of men teachers is descending to new lows. In 1940, 88 per cent of the kindergarten and elementary school teachers were women; approximately 70 per cent of the junior high school teachers were women; in reorganized high schools approximately 62 per cent of the teachers were women; and in regular and vocational high schools 56 per cent were women. There is a smaller percentage of women teachers in rural areas than in the urban systems, probably because of the prevalence of vocational-agricultural classes, which are usually conducted by men teachers.

In 1930, out of every 20 elementary school teachers, three or four were married women; three out of every 20 junior high school teachers were married women; and of every 20 senior high school teachers, about one or two were married women. Practices relative to the employment of married women teachers vary with the teacher's marital status, size of city, school level, and region. The pre-war trend in public sentiment has been against the employment of married women teachers. Rules and regulations of school boards regarding women teachers who marry while in service have been more favorable than in regard to married women applicants.

Those who favor the appointment or the retention of married women teachers hold that (1) a teacher whose marriage forces her to abandon her work is thereby removing from the classroom the benefits of her teaching experience, besides creating a feeling of instability among the students who have to adjust themselves to the replacing teacher, (2) the cost to the state of training new teachers is lessened by the retention of married teachers, (3) the policy encourages increased respect for wifehood and motherhood, and indirectly discourages spinsterhood among teachers, and (4) the student benefits by the clearer insight into and sympathy with adolescent problems, often evinced by the married woman teacher who is also a mother.

Conversely, those who oppose the appointment or retention of married women teachers object (1) to the competition of school duties with household duties for the teacher's time and attention, (2) to the fact that the situation may give rise to childless marriages,

(3) to the social problem created by employment being given to those whose marriage furnishes other means of support, rather than to the young unmarried teachers who may depend on teaching for their livelihood, and (4) to the lower salaries paid in certain teaching positions because of underbidding by married women.

The evidence from available studies of the relative efficiency of married and unmarried women teachers is inconclusive and contradictory; it offers little clue as to which policy with regard to the appointment of married teachers is the better. At present, the issue should be decided with reference to the basic professional and social considerations rather than on the evidence that has so far been adduced. (See *TEACHERS, LEGAL STATUS OF.*) D.H.C. and A.V.O.

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TEACHERS TRAINING SCHOOL —
See **NORMAL SCHOOL; TEACHERS COLLEGE.**

TEACHERS UNION. The American Federation of Teachers, commonly called the Teachers Union, was first organized in April, 1916, and formally affiliated with the American Federation of Labor one month later. Delegates of eight local groups, representing 2,800 teachers, attended the first meeting. For the most part, the organization is composed of classroom teachers serving in public schools. Private school teachers may join if the institution in which they teach is not conducted for private gain or for religious purposes. Supervisors are eligible for membership only if the local accepting them has been in existence for a certain period of time.

Four years after its inception, the organization numbered 12,000 members and included 140 local organizations. Since then, membership has fluctuated, reaching a low point of approximately 3,000 in 1926, and a high of approximately 35,000 in 1941. Since 1941, membership has decreased. This loss of membership may be attributed in part to factionalism within the organization, culminating

in the expulsion of four of the largest locals from the American Federation of Teachers on the grounds of communist domination.

In general, the activities of the American Federation of Teachers center around the protection of salary schedules, pensions, tenure rights, and academic freedom. The organization has also shown great interest in social legislation, actively supporting the child labor amendment, federal aid to education, antidiscrimination measures, and local and national health and social security measures. Both the national and local organizations engage in active lobbying for legislation which they desire. In the political field, the American Federation of Teachers has advocated the formation of a farmer-labor party as the only way in which organized labor could attain its objectives.

The nature of the social and political programs which the Teachers Union has sponsored led to the charge that the organization is "radical." Its opponents insist that it seriously minimizes professional concerns in its eagerness to promote economic measures for the benefit of its members. The supporters of the Teachers Union, however, point to the discussions of professional problems at its public meetings as indicative of interest in professional as well as social and economic problems.

J.J.

Reference.

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TEACHERS' WORKSHOP. A Teachers' Workshop is an experience-centered study undertaken by a group of mature persons. The group takes as its starting point the interests and needs of its members, and subgroups are formed to ensure a profitable interchange of opinion, knowledge, and experience. Consultants, rather than instructors, serve these groups, placing their specialized resources at their disposal both in group discussions and in exploration of individual problems and plans. The characteristics of this simple, informal, and functional organization are its flexibility and its relevance to specific tasks which the members wish to undertake more skillfully and with clearer vision after the workshop period.

The purpose is, therefore, not to provide

teachers with an opportunity to "earn credit," though credit has often been given by graduate institutions and by state and city departments of education. Experience has shown that teachers usually gain definite benefits, including an enlargement of knowledge, a broader outlook, new confidence, and a desire for further growth.

The workshop for teachers developed as a substitute for summer courses attended by teachers, which all too often required only a passive receptivity. It takes account, as courses attended could not do, of the variety of individual interests and the wide range of professional problems represented by a group of experienced teachers. Early experimentation was made under the auspices of a commission of the Progressive Education Association, which in 1936 brought together for consultation thirty-five teachers from a group of schools involved in a cooperative study of curriculum problems. In succeeding years other and larger groups were organized. Experience led to a revision of methods and the adoption of certain well-defined techniques. By 1940 fourteen colleges and universities had instituted summer programs utilizing these techniques and in later years many enterprises, with varying degrees of propriety, have been called "workshops." The workshop provides its members with information and expert professional direction, but its distinctive feature is that such assistance is relevant to the specific needs of the participants.

Many teachers need, not more knowledge primarily, but freedom to use what they know, confidence in adopting methods which others have found fruitful, assurance in attempting closer cooperation with colleagues. Such freedom and confidence is a usual product of the workshop, because each member finds he is valued, his problem is considered worth attention, his experience is taken as a starting-point for discussion, his growth is part of the purpose of the group. He brings with him an interest born of experience; he finds consultants and fellow-participants ready to relate that interest to theirs and to join him in the search for new ways of making it effective in professional and personal growth. Outstanding in evaluations of typical workshops by participants have been tributes to the help which they have found in conferences with staff members.

The individual member finds, in a well-conducted workshop, that his personal interests give him a place and a part in the work of a group of people whose activities he has a share in planning. These groups utilize the larger experience, expert knowledge, or leadership gifts of staff members ("consultants"), but do not become instruments serving the private purposes of the staff. Nor are they once and for all fixed in their form. A group may subdivide permanently or temporarily, or coalesce with other groups; it may follow one plan for a while and then adopt another to guide its discussions; or it may suspend meetings for a period of time. The democratic character of the group life, at once encouraging general participation and requiring subordination of individual preferences to group progress, has been generally acclaimed as a significant contribution to the growth of teachers in service, many of whom have known only an authoritarian pattern of professional organization.

One of the contributions of the workshop lies in its clear demonstration of the interrelationships which give meaning to traditional subject fields. Staff members are selected not only because of their competence in special fields, but also because they recognize and can interpret relationships.

The benefits of the workshop are found not only in the formal and planned activities and discussions, but in the day-by-day associations made possible when a group of people live together under conditions making for fellowship in work and play. Not least in value are the opportunities often provided for participation in arts and crafts. This activity provides release and reveals unsuspected talents, thus contributing to personal adjustment.

After several years of leadership in the organization of workshops, the Progressive Education Association in 1940 united with the Commission on Teacher Education of the American Council on Education in setting up a Workshop Advisory Service, which has counselled a large number of groups in their use of workshop techniques. This helped to save a significant movement from the dissipation of its achievements in ill-considered and inept imitations.

A word of caution is necessary. A workshop is not created by adopting the pattern of organization above described. Much de-

pends on the experience, judgment, and basic attitudes of those selected for the directing and consultant staff. They must, above all, appreciate and patiently use democratic procedures, yet give definite leadership. They must be interested in those they serve and demonstrate their friendly concern in a variety of ways. And those who enroll must be selected for that privilege so that no group has to contend with the liability of frivolous, unresponsive, egotistical or aggressive members. As far as possible, there should be advance assurance that those enrolled are persons likely to be able to make an active contribution, after the workshop, to the shaping of policy and the improvement of methods in the schools or colleges to which they will return. H.E.B.S.

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TEACHING PRINCIPAL—See PRINCIPAL, SCHOOL.

TEMPER TANTRUMS. Temper tantrums really are cases of extreme negativism of an explosive type wherein a child often throws things, breaks or scratches furniture, screams, kicks, throws himself on the floor, bangs his head against the wall, or holds his breath.

These outbursts occur most frequently between 2 and 3½ years, but may appear as early as 14 or 15 months of age. Even the most violent tantrums do not last longer, however, than 4 to 5 minutes and some often less. As the child grows older the outbursts become fewer, but their after-effects (such as sulkiness and resentfulness) tend to persist longer.

Temper tantrums may result from the child's desire for attention or from having his activities thwarted. Furthermore, they may be symptoms of fatigue or of poor physical condition induced by colds, constipation, or enuresis. They may also be caused by jeal-

TEMPERAMENT

ousy of another child in the family, or may merely be the imitation of high strung and uncontrolled parents.

In dealing with temper tantrums it should be kept in mind that very few children (except heart cases) will injure themselves by these outbursts. Thus, it is best, in most instances, to ignore this behavior, leaving the child by himself until the tantrum is over and then, without comment, allowing him to rejoin the family group. Slapping, spanking, and scolding are ineffectual and only serve to aggravate the problem. Parents should be calm and self-controlled when handling these episodes, and should not demand meaningless apologies. It is essential, also, to see that the child does not gain what he wants, either directly or indirectly, by resorting to temper tantrums. F.K.M.

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TEMPERAMENT. *Temperament* sometimes is, and sometimes is not, distinguished from personality. Allport, who endeavors to make the distinction, describes it as the "internal weather" in which personality develops." The four temperaments that the ancients distinguished—the sanguine, the melancholic, the choleric, and the phlegmatic—were attributed to the "humors" of the body. Humor and mood are still used synonymously with temperament except that they usually refer to a more temporary state, while temperament refers to a dispositional tendency. Both the temperaments the ancients distinguished and the wide variety of temperaments that have received names to date (e.g., irritability, boisterousness, dreaminess, moodiness, etc.), refer to a mode or style of behavior which may otherwise vary in every sort of manner and relate to all kinds of interests and values.

Temperament has always been recognized as having some relationship to the body and it is usually regarded as rooted in constitu-

tional factors and as largely hereditary in origin. Modern research has shown that temperament is intricately tied to body chemistry, so intricately that it is difficult to establish any one gland as determining a particular temperamental effect. It is only when there is serious glandular dysfunction that the resulting temperament can be moderately well predicted. Favorable modification of temperament is expected to result through promoting the normal functioning of the endocrine glands so that they serve to maintain the equilibrium of the body functions.

It must not be thought, however, that temperament is unmodifiable except by nutritional and medical treatment. It is true that infants in the first few months of life show differences in temperament by laughing or crying more readily, by greater irritability, fearfulness, or approachability. Though there is evidence to show that some of these traits of the first year persist to middle childhood and later, under some environmental conditions the traits are strengthened and under others they are diminished even to the point of disappearance. Timidity, apathy, moodiness, etc., may be counteracted by seeing that the child has certain favorable experiences, while optimism may be destroyed if life continues full of disappointments. While temperament may change less than other phases of the personality, its nonrigidity is evidenced by the fact that no individual displays a trait of temperament to the same degree in all situations. A "sunny" child is not equally sunny on every occasion, a slow-responding person is found to "fire-up" quickly under certain circumstances. There is no reason to believe that the provision of a type of environment which will tend to call forth temperament of a certain quality will not eventually change the threshold of the trait.

In a discussion of affective factors and learning, Prescott considers the probability that individual differences in temperament, such as emotional lability, may have an important and direct influence on the learning process. Unfortunately there is a complete lack of experimental data in this area.

W.F.B. and B.B.F.

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TEMPERANCE EDUCATION. In the United States "temperance education" has generally referred to special instruction concerning the physiological effects of narcotics, especially alcohol. Narcotic drugs and tobacco also are involved, but usually to a lesser degree. Such instruction is required by law in physiology and hygiene instruction of public schools in most states, and has been for at least the past thirty years. For various reasons temperance education, even when required by law, has not had the enthusiastic support of many educators. These reasons include: 1. disrepute of the earlier temperance education because of its unscientific nature; 2. over-zealous efforts of reformers to make temperance education a means to promote temperance legislation; 3. introduction of national prohibition with resultant relaxing of all educational efforts in temperance; 4. constant propaganda of commercial interests through advertising of alcoholic beverages and tobacco; 5. failure properly to train teachers in teacher-education institutions so that they have adequate knowledge of the problem and enthusiasm for teaching temperance.

In the past two decades scientific knowledge about the physiological, psychological, and social effects of indulgence in alcoholic beverages, drugs, and tobacco has widened rapidly. The result is that there is a respectable body of fact that can be taught with reasonable assurance of its authenticity. Textbooks in health, hygiene, and physiology containing this information are now available for use throughout all school grades. Syllabi on alcohol, drugs, and tobacco have been prepared by many city and state school systems. However, what teaching is being done in this field is chiefly in the elementary schools, despite the fact that young people face their most difficult decisions regarding indulgence after they have left the elementary grades.

Several recent developments have led to a shift in emphasis in temperance education. First, the increasing importance of safety, especially in driving, has given added point to study of the use and effects of alcohol. Second, while not a new emphasis, the strong

desire among both boys and girls to be physically fit for competition in sports provides a basis for motivating temperance education. Third, recognition of the psychological fact that drinking and smoking are motivated by understandable desires has led to an increased concern for the alleviation of the motivating circumstances. This leads the student into the economic and social sources of drinking and smoking and takes the discussion out of the realm of reform and into the realm of intelligent social planning. Fourth, there has come an increased recognition of the fact that if there are understandable motives to drinking and smoking then the alleviation of the problem must entail adequate substitute means of expression. For example, "Allied Youth," an organization for high school pupils who pledge themselves to abstinence from the use of alcohol, arose as a means of giving social prestige to abstinence. There is social pressure to drink; there must be corresponding social advantages to abstaining—this is the thesis upon which this organization operates.

Where temperance education is being seriously promoted today the emphasis, then, is four-fold: first, presentation of scientific facts in classes in health, hygiene, and physiology; second, recognition of the social implications of the problem in social studies classes and in literature; third, careful effort to satisfy by harmless substitutes the desires from which indulgence arises; and fourth, recognition of social approval as one of the most powerful of incentives, with the attendant inclusion of this incentive in temperance education. Social approval may come through the leadership of teachers who already have prestige. Youth organizations can provide a sense of belonging for the youngster who does not want to indulge. A constructive program of physical and social activities in such organizations is no doubt one of the best incentives to temperance and abstinence.

G.E.H.

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TENURE. *Tenure* refers to employment on an unconditional or permanent basis, except as provided in the law which creates it. It is customary for tenure laws to provide for a probationary period of service of from one to five years, during which a teacher may

be dismissed at the close of any year by the school board without showing cause for its action. But after the probationary period, if the teacher is retained she may not be dismissed without cause. (See **TEACHERS' CONTRACTS**.)

Indefinite tenure refers to employment for an indefinite period, with no date specified for the expiration of the employment.

The average length of tenure differs much in various states and communities where studies have been made. The National Education Association, Research Division, in 1938 reported a positive relationship between the tenure of city superintendents and the existence of laws designed to safeguard the tenure of teachers. The same source reported, from a study of 936 state university teacher-training graduates, that at the end of the fifth year after graduation 52 per cent had taught all five years in the public schools. For the 52 per cent, the average tenure in one school system was three years. These teachers changed positions less frequently in states having statewide indefinite tenure than in others.

Overn traced the movements of 1,036 teachers for nine years after they commenced their initial teaching experience in Minnesota. Forty-six of them were teaching in Minnesota during the ninth year. The average tenure in all classes of schools in that state, for the 990 who were no longer teaching in the state, was 2.29 years for men and 2.67 years for women. In general, the movement of those teachers to other school districts seemed to carry with it some improvement in their status.

In Illinois in 1938 the average length of tenure in the same district was 13.5 years for Chicago teachers and 3.2 years for all others. It was progressively greater in larger communities in the state. Judd reported that the average length of service of 11,220 teachers in New York outside of New York City at the time of death, retirement, or withdrawal, was 17.6, 35.3, and 4.6 years, respectively.

In 1930, superintendents and teachers reported the causes of withdrawals from teaching in the one-room schools of Michigan. Frequent causes were: to attend college, to secure a better position, or to marry. Those of rural birth and rearing withdrew as frequently as the others.

Serious attempts have been made in recent tenure laws to protect the teachers from unjust dismissal. The Pennsylvania law, for example, prevents dismissals for political causes, according to Scott; but it does not help reduce the number of administrative units, eliminate schools that are too small, nor encourage the employment of professionally trained teachers in all schools. There would be an advantage in legislation which comprehended all such related issues when attempting to contribute to the solution of teacher-personnel problems. A.V.O.

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A. V. OVERN, "The Length of Service of Minnesota Teachers," *Elementary School Journal*, XXXII: 34-43, Sept., 1931.

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TERM PAPER. The term paper, presumably based on considerable individual study and research, is a lengthy essay written by students as part of a course requirement. Although term papers are used occasionally in secondary schools and in the early college years, they are more common in courses designed for upper classmen at college and for graduate students.

The most frequent values claimed for the assignment of term papers are that they give able students an opportunity to do systematic, critical, and constructive work of their own under the instructor's guidance; that they supplement the students' knowledge of the field by wider reading and thinking and by greater practical handling of the material than is possible through daily assignments; and that they enable a student to explore more fully some phase of the course in which he has a special interest or which he is particularly well qualified to investigate, and which should not take up the time of the class as a whole.

On the other hand, instructors object to the time that must be spent in reading and commenting on these lengthy reports, and students complain that their preparation con-

sumes more time than they deserve. The inroads on the students' time may be so heavy that the legitimate demands of other courses are slighted. The topics are often far too ambitious for the students who are to do the research, with the result that much of the work is superficial. Moreover, instructors sometimes find that students merely paraphrase published material or that they recopy the term papers written by previous generations of students.

Extensive use has been made of various substitutes for the term paper because the task of writing, consuming time that often can be devoted more profitably to other phases of the assignment, sometimes detracts from the value of the assignment. What the substitute assignment is depends largely on the nature of the course, the composition of the class, and the special needs to be met by the assignment. Thus, if the assignment aims at introducing the student to bibliographic research, he may gain as much from the preparation of a carefully annotated bibliography as from the writing of a paper.

Where term papers are employed effectively, students are assured adequate guidance during the conduct of the research and the actual writing of the paper. They are helped to grasp the meaning of the various topics so that they may choose wisely the subject they are to explore. They are guided in their research so that they work most effectively. The students gain much from criticism of their outlines before they do the actual writing. A conference after the completed paper has been read by the instructor is also valuable. When this cannot be arranged, the student's paper is returned with a fairly complete analysis and criticism.

At some institutions, instructors who use term papers are expected to plan the day-by-day assignments so that students are not compelled to slight the reasonable demands made by other courses. The assignments are also planned so as to reduce the severity of peaks of work.

W.V.N.

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TERMAN, LEWIS MADISON(1877-).

Terman, one of America's foremost psychologists, was born January 15, 1877, in Johnson

County, Indiana. He received his B.A. (1902) and his M.A. (1903) degrees from Indiana University, and his Ph.D. degree (1905) from Clark University. From 1910 until 1942, when he retired, he was Professor of Psychology at Stanford University. He has been on the editorial board of numerous psychological publications, and in 1923 was president of the American Psychological Association. His contributions to education are noteworthy.

Terman's name is indissolubly linked with the revision of the Binet test. He was one of the first to realize the possibilities in this method of measuring intelligence, and the Stanford Revision of the Binet-Simon Scale, of which he was the author, has been the standard form in use in this country since 1917. In 1934 he published, with the collaboration of Maud A. Merrill, the new revised Stanford-Binet Scale.

Antedating his concern with the Binet test was Terman's interest in genius. After the first World War he secured a grant to make an initial and follow-up survey of one thousand gifted children in the State of California.

Terman has been interested, also, in problems of personal hygiene as they relate to the health of teachers and pupils and to the program of health work in schools.

Still another facet of interest in the early part of his career was the reading interests of children; with Lima he made an investigation in this field. The principal contributions in his later work are in the sphere of the relation between sex and personality, and factors contributing to marital happiness.

Terman contributed to the preparation of the Army Alpha Intelligence Scale, a group test used extensively in the Army during the first World War. He was impressed with the possibilities in group intelligence testing in schools and was on the committee responsible for the construction of the National Intelligence Tests. His own test—the Terman Group Test—has been widely used for many years at the secondary school level. P.M.S.

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TERMINAL TECHNICAL TRAINING

—See VOCATIONAL EDUCATION.

TERRITORIAL EDUCATION — See

UNITED STATES TERRITORIES AND OUTLYING POSSESSIONS, EDUCATION IN.

TESTS, RELIABILITY OF—See RELIABILITY.

TEST, VALIDITY OF—See VALIDITY.

TESTS—See ACHIEVEMENT TESTS; DIAGNOSIS, EDUCATIONAL; ESSAY EXAMINATION; EVALUATION; MEASUREMENT IN EDUCATION; OBJECTIVE TESTS AND EXAMINATIONS; PROFESSIONAL APTITUDE TESTS; PROGNOSTIC TESTS; STANDARDIZED TESTS.

TETRACHORIC r —See CORRELATION (STATISTICS.)

TEXTBOOK COST — See FINANCE, SCHOOL.

TEXTBOOK INVENTORY — See INVENTORY.

TEXTBOOKS. Investigations show that the textbook plays a prominent part in American education in determining both the content of instruction and, to a considerable extent, the teaching procedures, although changes in teaching procedures have not kept pace with the suggestions and provisions for new methods and techniques contained in many of the newer books. Teachers are often prone to continue old procedure even with the adoption of new textbooks.

Considering the dominant place of the text-

book in American education, we have been fortunate in that, for the most part, there has always been open competition in the preparation and production of textbooks, and that laws and regulations have fostered the selection of textbooks upon their merits. These conditions have stimulated publishers to use every means possible—investigations, experimental studies, try-out processes, etc.—to produce a superior product. Through frequent revisions and new editions textbooks are kept abreast of progress in knowledge and the best in educational thought. They are usually well made mechanically, and recent books are attractive in make-up and physical appearance.

On the other hand, textbooks may also retard changes in education. Since publishers are dependent on the market for the sale of a book, they try to please as many teachers as possible rather than take the risks involved in predicting which of the many trends in teaching will develop the greatest number of followers. Textbooks thus sometimes help perpetuate traditional methods and materials. For apparent reasons publishers are interested in books that have an appeal for teachers in as large a geographic area as possible. Textbooks are often, therefore, so general in appeal that they do not meet the specific needs of any given class. Although it is odd to object to the fact that textbooks are usually well bound, the fact remains that the physical life of a textbook sometimes outlives its usefulness. Many a student is studying his history and his science from books that were acceptable at the time of publication but are now obviously dated. When schools purchase the textbooks and distribute them to students free of charge, there is added reason for continuing to use a textbook beyond its period of greatest value, since it is cheaper to replace a few copies that have worn out than to purchase a complete set of new books.

Since the average beginning teacher in American schools lacks broad training, the modern textbook is a valuable asset for young teachers. Investigations show, however, that as the average teacher acquires experience, he gradually becomes independent of the textbook and relies more on his own judgment in selecting reference materials and collateral reading and in organizing the subject matter. A good modern textbook is especially

valuable in school today because: (1) It furnishes subject matter which the teacher may use as a basis for his own course planning. Most of our texts are based upon years of experience and experimental research, and supplementary material can be supplied according to class needs. (2) It furnishes supplementary problems and exercises as well as supplementary devices, such as check-lists, tests, and suggested activities for pupils. (3) It furnishes a good plan of organization which may be used for planning reviews and for helping pupils in organizing the material of a course. (4) It is a good source of reference to be used with topical outlines or laboratory problems.

Although the so-called textbook method of teaching has fallen into disrepute because of the way the textbook had been used in the old question and answer procedure, it can be used advantageously with: (1) the recitation-discussion procedure, (2) the problem-method procedure, (3) the laboratory procedure, and (4) the unit plan technique. The textbook may be used for the assignment of topics for study or it may be used as a reference for data or other helps. Many teachers are making use of textbooks in teaching pupils how to study and to use books, since all pupils are supplied with the same material for class use.

The textbook plays so important a role in school work that it is essential for teachers and administrators to have a sound basis for evaluating the books to be selected. The factors usually considered are: (1) authors, including their training, experience, and philosophy; (2) nature and organization of content, including its reliability, suitability to objectives, adaptability of organization of content to desired teaching procedures, and adaptability to pupil needs; (3) instructional aids for using the textbook; and (4) mechanical features, including the typography and format. The use of a score card for the analysis and appraisal of textbooks has been advocated, but there is considerable disagreement concerning the value and reliability of such devices; however, their use often has resulted in more careful analysis and better data for comparative purposes. There are few published score cards that have been accepted as authoritative.

The units for textbook adoption are usually

the local district, the county, or the state. Twenty-five states make the state the unit for uniform adoption, but some exceptions are made for certain cities or districts. The purpose of larger units is to secure greater uniformity and to reduce costs. For the most part state uniformity is confined to the South and the Far West, while the New England, Great Lakes, and prairie states have local or county adoptions. There are many objections to state uniformity because of its inflexibility and lack of provision for local needs, the danger of incompetence in textbook selection, and the possible influence of bribery or political pressures in the selection of textbooks.

California and Kansas publish part or all of their textbooks for elementary and secondary schools. Educators generally are opposed to this practice because of the danger of undesirable administrative control over the content of textbooks and the stifling of progress. Moreover, state publication has not reduced costs. Most states have laws protecting the adopting units from unfair practices, and competition usually has kept prices low.

The adopting authority usually varies according to the unit of adoption. In the forty-eight states and the District of Columbia, textbooks are selected as follows: (1) in seven states by a textbook commission or committee; (2) in eight of the state board of education; (3) in eleven by the local school board working with one of the preceding; (4) in six, county and local boards have joint jurisdiction, and (5) in seventeen, the local school boards make the selections. Usually the selection by school boards is made upon the recommendation of the superintendent of schools or of a committee of teachers or others appointed for the purpose.

In twenty-seven states and the District of Columbia provision for free textbooks is mandatory. In twenty others provision is optional for the elementary schools, ten of the twenty including the secondary schools. All states provide free textbooks for dependent and indigent children. A few states provide for the purchase and rental of textbooks to pupils at a fee to cover cost of books and administration.

T.M.R.

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TEXTILE SCHOOLS. Most schools and departments of home economics (*q.v.*) in junior and senior high schools and at the university level give instruction in clothing. Textiles are studied and used in making garments. In a few centers, for example in New York City, there are high schools of textile trades. In such schools various skilled textile trades are taught—trades such as textile designing, loom fixing, and dyeing.

There are also textile schools of post high school grade where textile trades and professions are taught, as well as cost accounting, organization and management of textile plants, and other advanced courses. Some of the post high school textile schools are of college or university grade. They offer four-year curriculums in textiles, and grant degrees to those who successfully complete them. Clemson College, South Carolina, and the North Carolina State College, Raleigh, North Carolina, are examples of such institutions. F.T.S.

THESIS. The terms *thesis* and *dissertation* frequently have been used interchangeably to indicate the relatively extensive piece of writing included as part of the requirements for completion of the course leading to a graduate degree. Preferred usage, however, tends toward *thesis* as the label for the Master's project, which is expected to show ability to think independently and to carry forward a carefully delimited problem to its logical or scientific solution, although the Master's thesis need not be a fundamentally original piece of research. For purposes of differentiation, *dissertation* may well be reserved to identify the Doctor's investigational project, which should represent original research and independent thinking, adequate methods, logical and sound conclusions, good literary form, and a contribution to knowledge worthy of publication. C.V.G.

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THINKING. Constructive thinking, defined as the formulation of ideas which redirect behavior, is a process in which materials and activities of all kinds, either actual or symbolic, are used as practical tools to resolve a problematic situation where ambiguity and uncertainty have made the next step indeterminate. Such a definition is opposed to the concept of thinking as mere mental activity to be engaged in for its own sake, or as a stream of sequential ideas detached from pragmatic consequences and human purposes.

In a classic description of reflective thinking, Dewey (*q.v.*) has analyzed the various processes involved in the complete act of thought. In the first place, thinking arises out of doubt and is an essential activity when progress toward the goal is blocked. Blocking may be owing either to a lack or an excess of paths to the goal, or to a feeling of doubt as to the adequacy of the path one already has in mind. When the perplexity arises from a lack of means by which the goal may be attained, the various aspects of the situation must be scrutinized until a possible plan for reaching the goal has been constructed. The goal, as well as past experience with similar situations, will guide one to pertinent and usable data. Once suggestions for further action are in mind, the reflective thinker proceeds to gauge their adequacy, to determine their consequences if acted upon, and to select the one most promising way in the light of the total situation, including all the consequences that have been plotted. The testing of the various hypotheses is done in terms of both reflection and of such ordered experimentation as is possible. On some occasions, putting a plan into full operation is the only empirical test possible. In any event, whether there has been preliminary experimentation or not, thinking should not be brought to a close until the plan has been put into operation and the manner in which it is actually working out is seen. Evaluation of these ongoing results is needed both to make sure that changes are instituted as they are seen to better the future outcomes, and to gain techniques and ideas for the solution of other problems which are now envisaged.

The period during which suggestions are developed, elaborated, and evaluated is the time when there is a great deal of inference-making. Inference-making is the process of

"arriving at an idea of what is absent on the basis of what is at hand." In situations in which the perplexity does not arise because of the need to construct or determine upon a means to a goal, but rather from the desire to understand better the nature of some object, the inference-making takes on largely an *explanatory* character. The reasoning processes in both types of doubtful situation, however, are similar. The desire to gain the understanding leads one to scrutiny of the present situation and to the recollection of relevant data necessary for the *construction* of the explanation. The explanation must be tested or *proved* and such testing must be also of an empirical nature. It must be a test *in fact*. Sometimes the test necessitates only further observation; sometimes it necessitates the manipulation of conditions to determine whether the cause and effect relationship which one has inferred is a true one. Intellectual curiosity, if it is not to be sterile, must have a connection with action. Though the action may on many occasions be imagined rather than overt, it must at all times be a trying out of the idea "to determine its agreement with the requirements of the situation."

On the other hand, the construction and carrying out of a plan for reaching an objective must contain also the feature of intellectual curiosity. The interest must be sufficiently theoretic and impartial to allow new and doubtful-appearing ideas to be put to the test. Action with poverty of thought and thought with poverty of action are equally inadequate. Both action and thought need a base of experience if they are to proceed effectively.

From the above description it is easily seen that thinking can be done in an excellent, mediocre, or poor fashion. It is a skill possible of development, and schools are setting up the improvement of the ability to think as one of their objectives. One of the first things of which the school must become aware is the intimate relation of language and thinking and the infinite creative possibilities as well as the multitude of dangers that arise out of this relationship. The development of language is essential for the development of complex forms of thinking, because words become signs of more or less specific meanings which can thus be handled easily and applied in different contexts. The concrete reference of particular words to specific ob-

jects and actions is clearly seen in the primitive tribe's vocabulary and in the young child's naming of persons, things, and activities. Because of the fact, however, that an immature child today encounters in a modern, civilized society a very extensive vocabulary containing a large proportion of abstract words, he may be confused in his thinking by the multitude of concepts represented and by the lack of concrete reference for many words that he hears. Especially dangerous is the situation where adults in the home or school insist upon verbal learning without making the meanings clear and significant through experience appropriate to the child's developmental status.

Training in thinking, according to the description of the process outlined above, involves the encountering and solving of problems that necessitate modification of action on an empirical as well as on a verbal plane. No area of subject matter, such as mathematics or language, has primary value for training in thinking. From early childhood through maturity the individual should be led into a variety of problems as wide and deep as his abilities and interests, and the needs of his society require. Through these experiences he must learn when to stop to think, how long to pursue the development of suggestions in different cases, how to choose objectives and use them in evaluating his own progress, and how to test the validity of the conclusions which he reaches.

A prominent danger to be avoided in constructive thinking is prejudice or prejudgment stemming from emotional attitudes. While thinking that is creative cannot be a cold, mechanical process moving by iron-bound rules but must be an exciting and flexible pursuit of vital interests, the thinker must not exclude relevant evidences or suggestions because of personal likes and dislikes. The development of emotional stability and of social attitudes is essential in the training of thinking. Fortunately, these several aspects of development — intellectual, emotional, and social—are closely related, for thinking is a social process, as language is a social product. An individual thinks effectively when he combines reflection with action and accepts suggestions and criticisms from his fellows without emotional upset. Thus, the child who is to become a mature thinker needs early to begin facing problems

as a member of a cooperating group having common interests and achieving common goals. In such a social context he may acquire attitudes that will serve him throughout life in solving individual problems as well as those problems which he shares with others. Under these conditions thinking becomes also a guide to social, ethical conduct and an instrument in choosing objectives appropriate to human development. Consequently, thinking on the part of every individual is essential to the democratic way of life, while the development of the desire to base action upon thought and the improvement of the skill with which problems are thought through become fundamental objectives of the democratic school. W.F.B. and B.B.F.

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THIRTY SCHOOLS EXPERIMENT

—See EIGHT YEAR STUDY OF THE PROGRESSIVE EDUCATION ASSOCIATION.

THORNDIKE, EDWARD LEE (1874—). Edward Lee Thorndike is one of America's eminent scientists in the fields of education and psychology. He was born in Williamsburg, Massachusetts, on August 31, 1874. He received his A.B. degree (1895) from Wesleyan University, another A.B. (1896) and his A.M. (1897) from Harvard University, and his Ph.D. (1898) from Columbia University. From 1904 until 1940, when he retired, he was Professor of Education at Teachers College, Columbia University. He holds many honorary degrees and has been president of several learned societies in this country.

Primarily a man of science, Thorndike's career, particularly in later years, has been devoted to research in the field of educational psychology. Probably he is best known for his investigations in the theory of learning,

having been the first to formulate the "law of effect," generally recognized as a basic law of learning. He has also made substantial contributions to the theory of psychological measurement, and is the author of several tests, notably the Thorndike Intelligence Examination for High School Graduates, and the Intelligence Scale CAVD, a carefully standardized power test running in a series of sections from the easiest to the most difficult levels. He was one of the first to use statistics in the study of mass data in psychological factors and educational outcomes.

Among Thorndike's contributions is the *Teacher's Word Book*, an inventory of the ten thousand (later extended to twenty thousand) most commonly used words in the English language. On the basis of this count he wrote the *Thorndike Century Junior Dictionary* and later the *Thorndike Century Senior Dictionary*. He has made noteworthy studies of the teaching of arithmetic and algebra, of the psychology of reading, of the effect of ventilation on efficiency, of the disciplinary value of school subjects, of adult learning, and of the factors associated with the cultural levels of cities. His three-volume work, *Educational Psychology*, was for many years both a pioneer and a standard work in this field. P.M.S.

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THRIFT EDUCATION. Thrift education in the schools has commonly been thought to comprise training in saving money. This training has usually been done through school banks and savings funds. Such banks were first organized more than a hundred years ago in European schools and were wide-

ly popular there before their introduction into American schools. The savings Division of the American Bankers Association has actively promoted school banks. The common objection to such savings plans—that they place children from needy homes at an undesirable disadvantage—has been met in some schools by canvassing the community for odd-job opportunities for these children so that they may earn money. Some criticism of savings plans in the schools comes from the fact that the money which the children save represents not their own thrift but money received from their parents.

Thrift has also received emphasis in school readers, in social studies units, and in the content of classes in orientation, personal adjustment, and home economics. This emphasis usually broadens the concept of thrift to include conservation of time, energy, materials, school and community property, and natural resources. "Thrift" thus becomes more than a matter of seeking personal economic security and becomes a matter of social planning. Also, thrift so taught provides many opportunities for developing attitudes of honesty, responsibility, and unselfishness.

War time conditions have stimulated this broader concern for "thrift" education because of the greatly increased earnings in the face of a steadily diminishing supply of consumer goods. Recognition of the desperate need for conservation is suggested by the warning that, "You will either teach about thrift in your schools, or else you will wind up with a dictator making the decisions arbitrarily about saving that intelligent and informed people would otherwise have made for themselves."

An element of thrift education of recent origin in the school curriculum is found in the increasing attention to consumer education (*q.v.*). Consumer education provides for the practice of thrift through wise buying. This instruction has been largely limited to girls, especially those taking home economics courses. However, courses in consumer economics in secondary schools and colleges have tended to encourage boys into this important field of thrift education. G.E.H.

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THYROID GLAND — See ENDOCRINE GLANDS.

TICS. Involuntary movements performed over and over, and confined to small groups of muscles. They may be functional or may be caused by some irritation arising from a structural defect. Thus, blinking of the eyes or twitching of the mouth may be associated with emotional conflict, while putting fingers into eyes or ears may persist after the irritation which originally caused these habits has disappeared.

Because a tic is an involuntary movement, obviously it cannot be controlled by the child. Nevertheless, parents sometimes nag or ridicule children afflicted with tics because they believe the trouble to be a habit, which can be eliminated if the individual makes an effort to do so. On the contrary, the emotional tension created in the child by parental censure or by his resentment at being punished unjustly may increase the difficulty of correcting the tic. The emotional or organic basis for the tic suggests the reason for the failure of any attempt to cure it directly rather than by removing its emotional or physical cause.

Ordinarily the child with a tic requires professional care far beyond that which can be given by an interested teacher. About all a sympathetic teacher can do to help the child who is thus afflicted is to surround him with a wholesome emotional atmosphere. The teacher should take care, of course, not to add to the child's tension by overemphasizing competition and rivalry or by making him feel inadequate. R.V.M.

TIME ALLOTMENT OF SCHOOL SUBJECTS. For a long time it has been the custom, particularly in elementary schools, to designate the amount of time which should be allotted to the various school subjects in an arbitrary manner. Attempts have been made to determine scientifically the amount of time to spend on various subjects, but up

TIME ALLOTMENT OF SCHOOL SUBJECTS

to 1943 no general standards had been agreed upon.

The following is typical of what is now required in many states:

PROGRAM OF STUDIES FOR SCHOOLS IN INDIANA*

*(Administrative Handbook for Indiana Schools, State Department of Public Instruction, Bulletin, No. 100, 1937).

A. PROGRAM OF STUDIES FOR GRADES 1-6

1. Language Arts—Reading, Oral and Written Expression, Writing and Spelling.
2. Social Studies—History, Civics and Social Geography.
3. Mathematics.
4. Elementary Science—Nature Study, Physical Geography.
5. Fine Arts—Music and Art.
6. Health, Safety and Physical Education.
7. Practical Arts.

The following are the suggested time allotments for the subject groups named above. These allotments include time spent in class instruction and study.

(1) Teachers will note that the time allotment is suggested for an entire week. This makes possible an arrangement of the program wherein certain subjects, for example: language arts, mathematics, social studies, fine arts, safety, health and physical education should appear in the program daily, while the elementary science and industrial arts might appear only at regular intervals.

Some teachers may want to work continuously upon certain units, for example: in elementary science, health, safety, or other subjects where the time allotment is small. This will be satisfactorily provided in the course of the grade period or semester, the approximate suggested time allotment is given to the various subject groups.

(2) Intermissions referred to in the time allotment have reference to the rest periods usually in the middle of the morning and afternoon sessions. These should come daily. In the case of primary grades, it may be desirable to have rest periods more often and for a shorter period. Teachers in the primary grades in consolidated schools where the regular school day is considerably longer than that usually assigned to the primary grades, should make the adjustment necessary to their grades by the use of rest periods, play periods, etc.

SUBJECT GROUP	Grade I Minutes per Week	Grade II Minutes per Week	Grade III Minutes per Week	Grade IV Minutes per Week	Grade V Minutes per Week	Grade VI Minutes per Week
Language Arts	680	620	670	575	550	550
Social Studies	50	50	100	200	300	300
Mathematics	†40	100	150	175	200	200
Elementary Science	35	35	35	35	40	40
Fine Arts	50	150	150	150	150	150
Safety, Health and Physical Education	120	120	120	140	160	160
Practical Arts	25	25	50	50	50	50
Intermission	150	150	150	150	150	150
Unassigned	100	100	75	25	50	50
Total for week	1,350	1,350	1,500	1,500	1,650	1,650

The length of the school day for the various grades can be found by dividing the suggested number of minutes per week by 5.

†The teacher should see the mathematics course of study for this grade for suggestions. Very little formal time, if any, should be spent in the first semester, and the time spent on mathematics in the second semester should be less formal than that spent on the subject in later grades. The mathematics instruction should grow out of the need and the desire of the child as he meets problems which call for the use of the operations suggested in the course of study.

(3) The unassigned time is meant for individual instruction, remedial and adjustment work necessary in every school.

(4) It is suggested that the opening exercise period, common in many of our schools, be purposeful in its nature to the point where it will contribute to one or more of the subject groups.

The exponents of *Progressive Education* (*q.v.*) do not uphold the time allotment of school subjects as prescribed above. They hold that a good curriculum for elementary school children centers around large enterprises and undertakings which permeate all aspects of school experience, giving meaning and significance to the many specific activities. Long periods for flexible work must be available. Exact time schedules with short periods, necessary when several teachers share the teaching of one child, defeat the effective development of such experiences. This problem of time allotment is tied very closely to the question of departmentalization. The progressives are certain that the only really satisfactory way to develop large central experiences and to have them permeate the entire curriculum, or at least most aspects of the curriculum, is to have the major responsibility for the school day of the child centered with a single teacher. (See **ACTIVITY PROGRAM.**)

The present trend is toward a compromise position between the traditional plan and the idea presented by the progressives. (See also **PROGRAM, DAILY** and **SCHEDULE, DAILY.**)

O.G.J.

TIME SAMPLING TECHNIQUE—See **CHILD PSYCHOLOGY.**

TOPOLOGICAL PSYCHOLOGY—See **PSYCHOLOGY, SCHOOLS OF.**

TORTIOUS LIABILITY—See **LIABILITY.**

TOUCH READING. This phrase refers to the process of securing meanings through embossed symbols through the sense of touch. This is usually done through the fingertips; though cases have been reported of an armless soldier reading with the nose. Various kinds of embossed symbols have been used; these are known as Roman letter, Moon types, American Braille, English Braille, and New York Point.

Braille is a system of reading by means of raised dots, devised for the blind by Louis Braille. The method of communication by means of raised dots came originally from the secret signal system of the French Army. When Louis Braille went blind his friend, Barbier, a cryptographer in the intelligence service, thought of using this secret code for communication with his friend.

Louis Braille subsequently modified and improved the code for the use of the blind. There are several different grades of Braille, graded according to difficulty. In Braille Grade 1, all the words are completely spelled out. Grade 1½ has 44 word abbreviations or contractions. Standard English Braille (Grade 2) has 185 contractions. Grade 3 is still further contracted. Numerous rules of syllabification and punctuation govern written Braille. M.E.F.

TOWNER-SHEPPARD ACT. The Towner-Sheppard Maternity Hygiene Act of Nov. 23, 1921 (42 STAT. 224, 42 U. S. C. 161) provided Federal appropriations for a period of five years to be apportioned among the states for the purpose of cooperation to reduce maternal and infant mortality and to protect the health of mothers and infants. The Supreme Court of the United States refused to sustain an attack upon the statute as being unconstitutional. *Massachusetts v. Mellon* (1923), 262 U. S. 447, 43 Sup. Ct. 597.

The Act was extended to cover Hawaii on March 10, 1924 (43 STAT. 17) but was repealed on January 22, 1927 (44 STAT. 1024) as of June 30, 1929.

Many educators hailed the passage of the Towner-Sheppard Act as an indication of federal support for more nearly adequate programs of preparental education, parental education, and preschool education (*qq.v.*). Although the Act was not in force long enough to exert any lasting influence on education, it encouraged the continuation of attempts at gaining federal aid for educational and health work with mothers and young children.

It is important to note that the Social Security Act of 1935, Title V, Part 1 (49 STAT. 629-31), as amended by 53 STAT. 1380-1) provides Federal grants-in-aid "for the purpose of enabling each state to extend and improve . . . services for promoting the health of mothers and children". H.N.R.

TOWNSHIP BOARD OF EDUCATION

—See BOARD OF EDUCATION, TOWNSHIP.

TOYS, EDUCATIONAL USES OF.

Though used by the child primarily for play and enjoyment, toys may at the same time aid in motor and manual development, as well as in mental, emotional and social growth. To be able to aid in such development, toys must be such as to demand growing skill or imagination on the part of the user. The toy which needs merely to be wound to do its tricks has little educational value and the same is true of the game where the moves are decided by the throwing of dice or the spin of a dial. Simple toys which lend themselves to a variety of games requiring different degrees of skill are good in that the child can always use them at his particular level of ability even though that ability is continually increasing. Push and pull wheel toys, balls, marbles, skipping ropes, tricycles and other such familiar media for muscular and manual activity retain their popularity year after year because the child can continually aim at more difficult skills in using them. Toys which help develop ideas of size, shape, weight, color and number are helpful for the young child. In this area there are boxes of different sizes which fit into one another if properly arranged, rings of different sizes to balance on a peg, shapes to fit into a form board, etc. For imaginative play, some equipment which the child can himself structure, such as blocks and boards and wheels and pegs, is necessary. This, supplemented by ready-made accessory toys such as dolls, animals, furniture, dishes, small trains, automobiles, boats and planes, will help the child play at events which actually happen in his environment until he better understands them. For older children, the more elaborate mechanical construction toys, as well as the model building sets of ships and planes are good. Many of these, however, require a degree of manual dexterity far beyond the ability of the children for whom they are usually bought. Some toys should be adequate for solitary play so that the child learns to get along by himself. Others should be adaptable to two or more players so that the child may learn how to get along with others, to take turns, and to keep to the rules of a game. Playing with

others also gives the child a chance to learn from others and so to improve his skill, knowledge and imagination. (See PLAY.)

Failure to derive the optimum educational value from the use of toys often results from the adults' poor choice of toys to be purchased for the child. To most parents, the toy represents merely a reward to be given to the child when he behaves well, or a gift that helps celebrate his birthday and Christmas. Furthermore, the choice of the toys to be bought reflects the adults' opinion of what the child would like to have, or even the child's actual interests, but rarely does it represent a considered evaluation of the child's needs and of the contribution which toys can make to help meet these needs.

When toys are selected wisely they are in harmony with the child's present interests, but they also help develop the child in areas and in traits in which further encouragement is needed. Thus, the child who tends to play by himself and to avoid the company of other children may be helped by being given toys that invite participation by a small group. Similarly, the youngster whose play activities are largely of the sedentary, indoor type, may need athletic toys appropriate for his age, such as a tricycle for the young child or a bicycle for the older one.

Since the parents rather than the teachers so often are the ones to determine the extent to which toys are used effectively, the use of toys as aids to child development is often an appropriate topic for discussion at parents' association meetings and in child study groups.

B.B.F.

TRADE ANALYSIS—See OCCUPATIONAL ANALYSIS.

TRADE EXTENSION EDUCATION
— See COOPERATIVE PART-TIME SCHOOL;
VOCATIONAL EDUCATION.

TRADE INFORMATION — See OCCUPATIONAL INFORMATION.

TRADE PREPARATORY TRAINING
—See VOCATIONAL EDUCATION; COOPERATIVE PART-TIME SCHOOL.

TRADE TEST — See OCCUPATIONAL TESTS.

TRAFFIC REGULATION, SCHOOL.

There are included under this topic two phases of traffic regulation: (1) regulation of pupil traffic within the school building and (2) regulation of pedestrian and vehicular traffic to and from school.

In regulating traffic within the school building the school administrator is governed largely by the size and construction of his school building with respect to the number of floors, sizes and locations of classrooms; width of corridors; number and location of stairways; and the like. He should plan his class schedule in terms of these relatively fixed factors. He should, if the location of stairways leading from one floor to another permits, use one-way traffic, having pupils move either up or down on a given stairway. He should avoid as much as possible a cross flow of traffic in corridors. If class rooms have two exits, he should provide for one-way traffic at each of these points. Minor rules and regulations concerning movement of pupils at class change depend upon the individual administrator, his faculty, and his school plant.

A special type of traffic regulation is needed for special types of pupil movement such as fire drills, air-raid drills, and the like. At these times safe and efficient speed and utmost cooperation are at a premium.

Traffic to and from school may involve transportation of pupils by busses, pupils' use of bicycles, pupil traffic in crossing streets, and pupils' use of sidewalks. Most school administrators make use of student patrols in regulating pupil pedestrian traffic at street crossings, in loading and unloading school busses, and for other purposes where extra safety precautions are needed. (See SAFETY EDUCATION.) W.R.F.

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TRAINING, TRANSFER OF — See TRANSFER OF LEARNING.

TRAINING SCHOOL FOR TEACHERS —See NORMAL SCHOOL; TEACHERS COLLEGE.

TRAIT. The observable consistency of behavior displayed to a greater or lesser degree by individuals both young and old has led to the concept of traits as generalized, neuropsychic systems which dispose the individual to act in certain similar ways in situations which have different specific stimuli. Kindness, acting upon reflection, preferring the old to the new, fearfulness that anything undertaken will turn out to be a failure, are a few of the multitude of traits which have been distinguished. It is seen that the specific way of acting may differ from situation to situation, even though the mode of behavior is sufficiently similar and distinctive to have the same trait-name, for example "dishonest," applied to it.

The erroneous assumption is sometimes made that personality traits are determined by specific inheritance and are separable aspects of the personality. That traits are a function of the environment, particularly the social environment, can be seen by the changes in personality that take place when the environment is radically altered. That traits are not separable aspects of the personality functioning in isolation from each other can be seen in situations where two or more such predispositions come into contact, necessitating a mode of behavior that is a display neither of one nor the other but of some integration of both. All analyses and testing of traits of personality need to be safeguarded by recognition of the unity of the personality, the interrelation of traits, their modifiability, and the inseparable action of inherited potentialities and social environment in the development of personality traits. While teachers are responsible for understanding the present traits of each pupil, they also have the opportunity to modify them substantially, since traits are permanent only to a degree, a degree which differs from trait to trait and from individual to individual.

W.F.B. and B.B.F.

TRAIT PROFILE—See PROFILE GRAPH.

TRANSFER OF LEARNING. This article has been titled transfer of learning rather than transfer of training since the latter term usually connotes a specific hypothesis of how transfer takes place. Since it is self-evident

that we do not meet new situations as if we had had no dealings with previous ones, the problem of transfer is not whether transfer takes place but to what extent and in what manner past learnings or experiences transfer to new situations to help or hinder us in solving them, and further, in what ways learning can be guided so that the maximum of positive transfer and the minimum of negative transfer may occur.

The popularity of the term transfer of training stemmed from its identification with the theory of formal discipline which for a long time was the accepted explanation as to how transfer can be made to take place. While the theory of formal discipline has now lost its prestige as a theory, the educational procedures which stemmed from it are still being practised. To understand the theory of formal discipline one must understand the *faculty psychology* upon which it was based. According to this psychology, the mind is made up of a number of powers or faculties such as the faculty of will, of feeling, of memory, of reasoning, etc. Some faculty psychologists thought of these powers as regions of the brain (compare with phrenology); others assigned to them no such specific physiological counterpart. Both groups, however, conceived that these faculties or capacities developed in much the same way that muscles develop. Muscles grow more able to do work such as pushing, and pulling, and lifting if they have already been exercised in pushing and pulling and lifting. The fact that new objects are to be lifted will not interfere with the ability to lift. The senses, it was argued, also develop through exercise. Keeness of observation and of hearing improve as the individual practises observing small details and listening to faint sounds. By analogy, it was claimed that the faculties of the mind, such as memory and reasoning, increase their functional ability when they have received exercise. These abilities were thought of as general abilities which could operate equally well on any type of material no matter what kind of material had been involved in previous memorizing and reasoning. The important thing was to discipline or train or exercise each of the faculties. The content of what was studied need not be useful in itself. It was believed that memory could be trained by memorizing

nonsense syllables and that reasoning could be disciplined by following the logic of any well set forth explanation. The school curriculum need therefore contain only a few subjects as long as these subjects provided exercise for the various faculties. The theory of formal discipline did not specify which subjects were most suitable. However, since Latin, Greek and mathematics formed the traditional curriculum of the time, these subjects were put forward as being the best subjects upon which the mind could be trained. In many a school, the amount of Latin and Geometry which is required of every student is not enough to lead to a degree of mastery which will enable the learning to be of some use. One must infer, therefore, that these schools still believe that reasoning in geometry will equip a person to reason in political affairs. "Memory courses" are still being advertised and sold, and probably the majority of our population still believes that the best way to train the will is to do or to be made to do unpleasant tasks. School people praised such subjects as Latin not only because the grammar of the Latin language was a logical one and therefore its study would sharpen reasoning powers but also because it was difficult and disliked by many students and therefore they would have an opportunity to exercise their will in applying themselves to it. Even today one hears prominent persons voice the belief that had Latin been a compulsory subject in our high schools, the American people would engage in their activities with more endurance and would be better able to reason about war and post-war policies.

The doctrine of formal discipline has been attacked from several fronts. Dewey's classical statement that effort follows interest pointed to a new criterion for selecting curriculum content and became a foundational principle in the practice of *progressive education* (*q.v.*). Many illustrations from life could be drawn upon to contradict the theory of mental faculties which improved in general. There were scientists who had a prodigious memory for the facts of their science but who could not remember the names of their neighbors; handwriting experts who could distinguish forgeries but were at a loss to follow a man's trail through the woods; bookkeepers who were painstakingly neat in

their account books but who wrote letters their friends could barely make out; mathematicians who could very quickly detect the fallacy in a false mathematical solution but who were easily influenced by all kinds of advertising propaganda. Illustrations from life, however, could always be countered with other illustrations. Sceptics of the theory of formal discipline therefore began to put it to empirical test.

Several ways of testing were used. In cases where subjects were practised in a simple task (e. g. the crossing out of every *a* and *s* on a printed page or the memorization of nonsense syllables) and were then given a new but similar task to perform (e. g. the crossing out of every *e* and *t*, or the memorization of poetry) ability in which was compared with the ability of a control, unpractised group, it was found that in some cases there was considerable transfer, in some cases little transfer, in some cases no transfer, while in some there was negative transfer, the first task seemingly interfering with the ability to do the second. Another method of investigating transfer is to compare the effects of classroom teaching of the various subjects. Thorndike gave high school students who were following different courses of study tests of reasoning at the beginning of a school year and again at the end. Improvement in the general ability to think as measured by Thorndike's tests was no greater for students who had pursued one course of study than for students who had pursued another. There were many individual differences, however, and students of high general intelligence gained more than students of low intelligence, no matter what subjects they had studied.

Since the many experiments undertaken to test the theory of transfer showed that transfer did take place to some extent, psychologists felt called upon to construct a hypothesis to replace the theory of formal discipline which was not confirmed by the facts. The theory of identical elements was proposed, chiefly by Thorndike. This theory asserted that mental performances are facilitated by previous mental performances only when both instances involve "identical elements." These elements may be common word roots as in Latin and English, overlapping items of information as in history and literature, or the same basic skills as are found in both

arithmetic and algebra. Beside identical elements of common content or instrumental skills, the term was extended to cover common "reactions" evoked by different learning situations which were likely to be similar, however, in at least some inconspicuous feature or element. Thus habits of work, attitudes of appreciation, and language terms were said to be identical elements through which what was learned in one instance became available for use in a second.

The principle that there must be some common feature between the old situation and the new for transfer to take place is still held as foundational. The emphasis on elements, on identity, and on the neural theory which Thorndike built up to accompany this explanation of transfer has been largely discarded. It has been pointed out that identity need not be present, similarity is sufficient. Objective equivalence, moreover, is not sufficient. The similarity must be seen by the learner. Identical elements embodied in different situations may not appear as identical. On the other hand, objectively different things may because of some attitude or purpose of the learner assume sufficient similarity for transfer of learning to take place.

Studies in *cross-education* attacked the theory of identical elements because it specified certain "synaptic" junctions between nerve cells to be the locus of practice effects. Experiments were undertaken to discover if the results of training one body member (e. g. the right hand) would transfer to other body members (e. g. the left hand) or whether the person would be limited by the particular synapses involved in the use of the trained member. Such studies have in general shown that cross-education does take place. Emert found that right-handed subjects who had already learned to trace a pattern with the right hand by the mirror drawing method did better on the first tracing they then made with their left hand than they had done on the first right-handed tracing. Bray found that there could be cross-education from hand to foot and vice versa. Lashley trained rats to make brightness discriminations with one eye while the other was blindfolded and found that perfect discrimination continued when the blindfold was changed to the opposite eye. Lashley also found that monkeys who had learned to open a latch with one

hand while the other had been temporarily paralyzed were quite able to perform successfully with the paralyzed hand when it had recovered and the trained hand was paralyzed. Gestalt psychologists are particularly interested in these studies on cross-education, claiming that they prove that learning and transfer of learning occur in terms of the gaining of insights rather than in terms of the training of specific parts of the brain or of the rest of the body, and that it is the total neuromuscular system that learns. Koffka points out, however, that Lashley's experiments show that the degree of localization of habits in certain areas of the brain differs with the habit. Brightness discrimination has a definite localization while the learning of which alleys to enter when going through a maze seems to be distributed over the entire cortex. Thus the maze can be solved without error when once learned even though later different movements than the original must be made owing to brain lesions which paralyze parts of the musculature.

Another point of view as to how transfer takes place was developed, particularly by Judd. Judd believes that in the *higher mental processes* transfer is the rule rather than the exception, and that systems of ideas can be carried over from one situation to another. Judd and others performed experiments to show that known generalizations are used to solve new particular problems and that subjects who gain insight into the principle by which a specific problem can be solved can then use it to solve another specific problem. Transfer will be aided if the learner is directed to generalize his experience in such a manner that a number of learning situations may be viewed as different manifestations of the same principle.

That reasoning or thinking can be improved in general is one of the major teachings of John Dewey and an objective of progressive educators. Dewey, however, is careful to point out that though a general method of attacking problems can be learned which will serve on all occasions, thinking cannot go on effectively when there is lack of knowledge of the data which are needed to solve the problem. What transfers, then, is past knowledge derived from past experience, and a method of gathering data and making and proving inferences, which is also derived

from past experiences. Neither Dewey nor Judd subscribes to the theory of formal discipline though both believe in transfer of learning.

Today's attack upon the problem of transfer is the attempt to determine how one can teach so that the maximum of transfer will take place. It has been found that transfer cannot be a vague objective, if it is to be an effective objective. The teacher must be quite clear as to what techniques, and generalizations, and attitudes she wants the student to carry over from one situation to another. The student, moreover, will not transfer generalizations that he knows by heart but does not understand. Rule-of-thumb procedures are equally ineffectual. Knowledge that is largely verbal and has had little connection with direct experience will not transfer to a situation where a practical application must be made. Transfer is aided if at the time when students are solving one particular problem, they are guided to name other problems in which the understandings being learned can also apply. Transfer of learning is itself a skill that can and needs to be practised. Students who are allowed to discover solutions for themselves or with a minimum of guidance are in each case transferring past experience to present. While there are individual differences in the degree to which the ability to transfer relevant past learnings can be acquired, this ability, like any other, can be improved.

While transfer in the field of knowledge and skill has been discussed as an ability, transfer in the field of attitudes and conduct has the characteristics of an attitude more than of an ability. An individual may show himself relatively inadequate in solving a particular problem or in memorizing a poem if he considers the task unimportant. His difficulty may remain, however, even when he attaches great importance to the task and has had past experiences which could be of help. In the display of neatness, or kindness, or honesty, or tolerance, ability plays the minor rôle and value the major one. The person "knows how" to behave a certain way but in this situation does not wish to do so. Because he was kind on many previous occasions does not necessarily mean that he will be kind now. The very pattern of his personality may be such that he is always kind

towards certain persons and always cruel towards others. In contrast, certain prejudices, likes and dislikes may snowball at very rapid speed. In the field of personality guidance the problem is as often the attempt to reduce likely transfer as it is to encourage transfer to take place.

Along with the theory of identical elements there arose the theory that conduct is specific and that there are few if any generalized traits. The direct teaching of learnings which "life itself would demand" was stressed. Education became more directly vocational and less formal and "cultural." It is now rather generally agreed that transfer takes place beyond the limits of mere content of subject matter, and that overspecialization of the curriculum along vocational and immediately practical lines may at times have taken place. No school subject, on the other hand, can reasonably be justified on its formal training value alone since this appears to be relatively small, or at least difficult to evaluate in an objective manner. The self-activity of the pupil, as issuing from both his general ability and the stimulation and direction of the teacher, is seen to be an important matter. Any completely satisfactory theory of transfer will probably be the outgrowth of the improvement of our present theories of learning, of which transfer is a phase. Experimental studies will contribute to this in proportion to the attention they give to the by-products of learning, over and above the performance itself which is practised and reproduced.

W.D.C. and B.B.F.

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TRANSIENT CHILDREN. Transient children are children who travel from place to place across the country either in families or by themselves. In either case, they present both social and educational problems.

The causes of migration are numerous. Many families were forced onto the road during the depression in search of employment. Young people left homes to lessen the family relief burdens.

From 1933 to 1936 the Federal Government appropriated upward of 86 million dollars for the care of transients. The largest number of persons cared for in any one month was 300,460 in February, 1935. At the depth of the depression, it is estimated that at least 400,000 individual young persons were "on the road."

Under the Federal Transient Program (1933-35) some 300 camps for transients were established; these were later converted into work camps under the W. P. A. (*q.v.*).

Large numbers of migrant families in the West and Southwest follow the harvesting of crops in the hope of obtaining seasonal employment. This migration was accentuated by the drought in the "Dust Bowl" regions. Every year from one to two million men, women, and children move about the country seeking farm jobs. Between the middle of 1935 and the end of 1939, 350,000 persons of this type were counted entering California alone. In Texas and Oklahoma there are probably more than 50,000 roving cotton pickers.

The Farm Security Administration estimates that "there are probably between 250,000 and 400,000 of these farm families wandering around over the face of the earth."

Migrant families and their children present many social problems. Their annual income is low, and when their seasonal employment is cut off they are likely soon to be on relief. The Resettlement Administration in 1935 found average annual earnings of about \$250 per worker and about \$450-500 per family. Low earnings, unemployment, instability, insecurity, bad housing, hostility of the established residents, interrupted schooling, poor sanitation, spread of disease—all of these social conditions surrounding the migrant are especially bad for children.

The children of migrants put a burden upon the local school system which is often

TRANSPORTATION OF PUPILS

resented by resident taxpayers. Children are stigmatized at school as "pea pickers," "Okies," and "Arkies." Parents realize that their children are not receiving as good an education as they had themselves.

The problem of the allocation between private and public, state and federal agencies of the social and educational relief of these migrant families and their children is far from solution. The Interstate Conference on Transient and Settlement Laws (in March, 1936) emphasized the importance of both federal and state action. The Secretary of Labor has the responsibility of reporting to the Congress the results of surveys in this field with recommendations for legislation.

M.E.F.

TRANSPORTATION OF PUPILS.

The transportation of pupils to schools is a business of large proportions. In 1923-24 there were 837,361 pupils transported to schools in the United States; by 1937-38 there were 3,225,361 pupils being transported at an expenditure of \$61,032,340. This movement to transport pupils to school was begun first in Massachusetts; public funds for that purpose were legalized by that state in 1869.

The real development of pupil transportation has had to await the coming of better roads and the consolidation of schools. Originally, schools sprang into being at small centers of populations; as individual families moved into the surrounding territory and as land surveys were made, one-room schools were established, nine to the township or one for each plot of land two miles square, in many sections of the country. This placed a schoolhouse within easy walking distance of every child within the township.

But social needs gradually outgrew the one-room school; pressure for the consolidation of schools began to be felt. Then came the automobile and the demand for good roads that would provide for more effective use of this new means of transportation. This latter movement supplemented the former. Regardless of the need for consolidation, little progress could be made in that direction until means were provided for transporting pupils over greater distances. With the arrival of both the automobile and the hard roads, an ideal setting was arranged for the consolidation of schools and with it for the increased transportation of pupils.

Many problems face school authorities in making the transportation of pupils rapid, efficient, and safe. Reeder lists the following: "Shall the school district own the busses or contract for them? What standards shall the busses meet? How shall bus routes be planned? What qualifications shall bus drivers possess? How shall pupils who are transported be supervised? How may accidents be reduced or eliminated? What types of insurance, if any, shall be carried? How may costs be reduced without decreasing the quality of service? What records shall be kept?"

Not all of these questions can be answered definitely. Where the ownership of busses should reside is a most controversial problem. Many recent studies tend to show that school-owned vehicles make transportation cheaper; they also show that transportation in parents' automobiles is the most expensive. However, other criteria are perhaps more important than costs.

Standards for judging school busses probably will never be final, but the general criteria against which to check school bus construction are *safety, comfort, durability, and economy*. The planning of bus routes is most important; this actual transportation of pupils touches home life most intimately. If children are driven to school by long indirect routes or if a bus load of pupils has to wait for a single child, discomfort and sharp criticism result. The most important step in planning bus routes is the making of a transportation map of the district; this map locates and identifies all types of roads within the district and then spots the school children who must be transported.

The bus driver must transport pupils safely, supervise them en route, and care for his bus. It would seem, therefore, that a driver should be a man of moral character and good habits; he should be physically fit; and he should know transportation laws and practices for his district. In order to eliminate accidents, pupils as well as the driver should know the specific rules generally acceptable in governing their conduct while being transported; often, through ignorance, a youth so conducts himself as to endanger the safety of himself and others. Proper instructions to both driver and children can prevent many accidents. (See SAFETY EDUCATION.)

The following are the more common types

of transportation insurance: (1) bodily injury liability; (2) pupil accidents; (3) property damage liability; (4) fire and lightning; (5) theft, robbery, and pilferage; (6) tornado, cyclone, windstorm, hail, earthquake, explosion, and water damage; (7) full collision; and (8) deductible collision. (See **LIABILITY; NEGLIGENCE.**)

Unless the basic questions are answered satisfactorily by each school district that engages to transport any considerable number of pupils, school children may suffer extreme physical discomfort, acquire habits of bad conduct, and endanger health and life. The problem presented by the transportation of pupils demands the most careful consideration by school officials. **A.O.H.**

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TRAVEL. Travel is an important means whereby teachers may enlarge their intellectual horizons. In some school systems it is the policy to base salary increases on travel; other school systems grant leaves of absence for travel on the theory that it is a worthy means of professional improvement.⁴

Many leading colleges and universities are granting college credit for tours conducted under the guidance of competent instructors. Price, who was on a scholarship from the Commission on Teacher Education of the American Council on Education in 1940, describes in glowing terms a 2000-mile summer session of touring and training for which he was awarded 9 quarter hours of college credit in social studies. Since his experience is typical of the way the sightseeing courses are conducted, it might be worth noting that the class spent a week on the campus before the tour began, during which time they listened to lectures on geography, economics, and other aspects of the trip, and read and selected some books to take along with them. After this, they spent the greater part of the summer session on a tour during which they actually saw social conditions and interviewed the people about whom they were

studying under tutorship of their instructor-guide. After the travel, a week was taken on the campus for summary, speculation, and talks by members of the group.³

The purpose of educationally planned tours, escorted by competent instructor-guides in various fields, is to supplement mere book learning with the rich first-hand experiences afforded by travel and to make these visits to shrines of human achievement of significant and enduring value. Before the second World War began, the American Institute of Educational Travel (Fifth Avenue, New York), offered each year a varied program of European tours under the direction of American college teachers, for which credits were granted in many colleges and universities of the country as the equivalent of corresponding work done in such fields as music, history, art, and literature.¹

Education through travel also has become popular in the elementary and secondary schools. Not many educators who read Fitzgerald's account of a summer tour with 26 youngsters on approximately \$14 for each child would care to stress the disadvantages of education by travel. Using an old school bus which the teachers had bought for the purpose, this tour covered hundreds of miles through Oklahoma, Tennessee, Georgia, North Carolina, Virginia, Pennsylvania, and New York, and Canada; and gave the rural children such educational experiences as visiting Niagara Falls, using Canadian money, and meeting senators, congressmen, and other prominent people in many places.² (See **TRIP, SCHOOL.**) **D.H.C. and A.R.A.**

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TRIGONOMETRY—See **MATHEMATICS, TEACHING OF.**

TRIP, SCHOOL. The school trip is a form of school activity in which pupils are taken out of the classroom for the purpose of providing them with sensory experience with people, things, and processes that cannot

be brought into the school. It is the most concrete of all audio-visual aids to teaching.

Classified with reference to the administrative arrangements required, school trips fall into four classes: (1) one-period field trips or visits to places near the school, which involve little or no collaboration with other teachers or with parents; (2) similar trips covering more than one period but not more than one day, which can be arranged by the teachers and principal of a school; (3) overnight or week-end trips involving parental cooperation; and (4) extended journeys of two weeks or more, for which special itineraries and all the arrangements for travel are necessary.

More frequently used in connection with science and social studies than with other subject matter, field trips are directed to acquiring first-hand experience and information about some topic or problem under study. Short field trips have the same general value as the longer school journey. Common objectives of field trips are museums for some specific kinds of exhibits; fields, woods, and farms for observing or collecting plants, animals, geological materials, etc.; manufacturing plants; public utilities, such as telephone exchanges and waterworks; and local government agencies.

Many values are claimed for this form of instruction: (1) The school trip supplies wide and varied experience organized in the pattern of the real world and constituting in itself the most liberal kind of education. (2) It supplies substance for the abstractions and generalizations of schoolwork, increasing interest, integrating subject matter fields, and bridging the gap between the school and the outside world. (3) It affords excellent opportunity for learning cooperation, courtesy, social adjustment, and business dealing in a natural situation. (4) It promotes understanding among different social, economic, national, and racial groups.

The school journey may be general in purpose, as the afternoon visit by a kindergarten class to a farm or the four-week vacation tour of the eastern states and Canada by a high school group; or it may be a part of instruction in some subject matter field. Among trips of the latter type are field trips by science classes to gather specimens or to observe animals, plants, or geological features

in their natural setting; trips to study local industrial or utility plants; visits to scenes of historic events or literary productions; tours of city, state or national government offices and buildings; and visits to art galleries, museums, observatories, theatres; etc. A trip to a milk pasteurizing plant may illustrate many of the principles of science and health that previously have been vague paragraphs in textbooks. Opportunities for such trips often exist within a block or two of the school building; they need not involve great expense or an undue proportion of school time. In fact, one of the most helpful trips that can be made in many schools is a carefully planned tour of the school building itself. The nurse may meet the group at the health office and explain the function of the school health service. The principal may welcome the group to his office and explain how the school records are kept and how a school is administered. The janitor comes into his own as an educator on such a trip, for the pupils are interested in learning how their building is heated, cleaned, and kept in good running order. Here is an opportunity for the pupil to become acquainted with his immediate environment, to learn valuable lessons of citizenship, to share in learning experiences, and to cooperate actively in carrying out a worth-while project.

More elaborate trips, usually called school journeys, may be taken with considerable benefit to all concerned. The children of some of New York City's schools have visited the coal mining regions of West Virginia, have lived with their southern neighbors, and have learned at firsthand the characteristics of their land, their work, and their common problems. The children of the coal mining towns have returned the visit and have had their horizons considerably broadened as a result. The children of the public schools of New York City have circled their city on municipal ferry boats and learned about their island metropolis. Many other schools have visited their state capitals and watched legislatures in action. Still others have visited the nation's capital to see, hear, and study their national government.

Whether the destination of the school trip is just around the corner or a thousand miles away there are certain basic principles which should be observed. The teacher should,

TRUANCY

whenever possible, take the trip beforehand, going over the ground carefully, studying the educational possibilities inherent in the situation, and planning the stops, the questions to be elicited, and their explanations. Careful planning includes: (1) adequate preparation of the class so that the students understand the reasons for the trip and their individual and group responsibilities for its success; (2) arrangements for transportation and, when necessary, for food and lodging; (3) preliminary discussion or correspondence with those in charge of the place to be visited so that they, too, understand what the class hopes to gain from the experience; (4) a planned procedure for student activity during the visit; and (5) provision for checking and integrating the results into the larger patterns of instruction by providing for appropriate follow-up activities. The best trip is the one that opens up new fields of interest, opportunities for creative endeavors, and the desire to investigate still further. When trips are carefully planned and conducted, the teacher can readily prevent the usual objections to school journeys and field trips, namely, waste of time and rowdiness.

The problem of the school's and the teacher's liability in cases of accident and injury to pupils in school journeys is a particularly pressing one. The legal responsibility of the school and the teacher varies in different localities (See **LIABILITY**; **NEGLIGENCE**), and it is advisable for the parents and the school authorities to be thoroughly conversant with the legal problems that arise in case of injury to the children. In any event, the teachers in charge bear the greatest responsibility for the safety of the children in their care and, in general, can be held liable in case of proved negligence. Some teachers find it advisable to seek insurance coverage for their financial protection.

More widely used in England, Germany, and other European countries than in America, the extended school journey is increasing in popularity here, and finds a place in schools of all grades—from kindergarten to university.

H.B. and W.H.H.

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TRUANCY. The term "truancy" is not synonymous with "running away," but is used to describe prolonged absence from school without the knowledge of parents or guardians. In itself, truancy is not regarded as serious, but it often leads to delinquencies. (See **JUVENILE DELINQUENTS**.) The child's freedom from restraint, his feeling of guilt, and the fear of being apprehended, may cause him to seek undesirable hideouts, and to join asocial gangs.

The causes for truancy are numerous, and involve basic educational and social conditions, e.g., the child's dislike for school, unwholesome home situations, or excessive distances from school, as in rural areas. The child may have insufficient intelligence to understand and do the work expected of him in school, or he may be so intellectually superior that he is bored and will make no effort. He may dislike the teacher or feel that she has a grudge against him. He may receive low marks and fear that he will not pass. He may be ashamed or embarrassed by shabby or ill-fitting clothes. If he is tardy, he may be afraid to report at school or to return home. Hence, he may use truancy to escape from any of these unpleasant situations. Truancy may be a symptom of emotional instability, where the child uses it to express his rebellion against parental domination, to get even with or to punish someone, or to see the world. Some truancy, also, may be due to parents insisting that the child work, or to their indifference, ignorance, or antagonism toward the school.

The school's policy toward truants has changed from one of coercion to one of understanding the child, and the old-type truant officer has been replaced by a well-trained and sympathetic attendance officer, visiting teacher, or school nurse. Their services are often supplemented by counselors, clinical psychologists, and psychiatrists. There is no standard treatment for truancy, as each case must be considered in the light of its own

conditions. The school is taking measures to prevent truancy by instituting an elaborate system of child accounting with cumulative record cards designed to follow the child's progress from year to year, and to provide data about his personal adjustments. A school census is made each year, and teachers are required to keep accurate attendance records. Serious attention is being given to the adaptation of the school to the child's needs, abilities, and interests through the revision of pupil reports and marks, promotions, establishment of special classes, more challenging methods of instruction, and the selection of understanding and emotionally well-balanced teachers. Parent-Teacher Associations have been of considerable aid in supplying clothes, necessities, and scholarships to children from needy families. Progressive systems are giving more adequate health inspection, and better medical facilities; and are trying to acquaint the parents with the functions and nature of the modern school. Better transportation is being provided and many rural schools are being consolidated.

Some school systems have sought to punish truants by placing them in detention homes, where no educational facilities are available. Others have sent them to disciplinary classes or to truant schools where some educational work, primarily industrial, is given; thus the truants are kept off the street and away from bad company. The present trend, however, is to determine the child's motive through the case-study technique, and to prescribe and carry out corrective measures which will secure his adjustment to normal school conditions. Thus, where the home is too harsh, dominating, or uninteresting, the remedy may be found through the provision of some new adventure or legitimate thrill, such as summer camps, or properly supervised excursions. (See SOCIAL SERVICE ACTIVITIES IN SCHOOLS.)

The prevention and correction of truancy are sometimes relatively simple processes, but the treatment of habitual or prolonged truancy is usually a serious problem that is solved best by individual study of the child's difficulties. It is significant that the pupil personnel bureaus of large school systems find it advisable to educate their attendance officers to an understanding of the basic principles of case work. (See COMPULSORY AT-

TENDANCE; SOCIAL SERVICE ACTIVITIES IN SCHOOLS).

F.K.M.

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TRUANT OFFICER—See COMPULSORY ATTENDANCE; SOCIAL SERVICE ACTIVITIES IN SCHOOLS; TRUANCY.

TRUE-FALSE TEST—See OBJECTIVE TESTS AND EXAMINATIONS.

TRUE SCORE—See RELIABILITY.

TUBERCULOSIS—See COMMUNICABLE DISEASES OF CHILDHOOD.

TURKEY, EDUCATION IN. *Organization.* The school system in Turkey is centralized. The Ministry of Education determines the curriculum, publishes textbooks, appoints departmental and provincial administrations, supervises the examination and certification of teachers and pupils, determines the locations of new and transfers of old schools, and in general initiates and controls all matters of policy. The Ministry comprises bureaus which are in charge of primary, secondary, higher, and vocational schools, and offices which supervise public libraries and museums.

Direct contact with primary and secondary schools is maintained through the 63 *vilâyet* (province) directorates, each of which is organized like the Ministry. Directors are assisted by inspectors who are specialists as to grades, subject matter, and types of schools. School principals carry local responsibility for adherence to curriculum, direction of teachers, and such matters as discipline. Faculty meetings are held not only for the distribution of orders, but also for democratic forums on school projects, problems of individual students, and discussion and decisions on recommendations to provincial directors and even to the Ministry.

Secondary, higher, and special schools are supported by the Central Government. Primary school expenses generally are included in *vilâyet* budgets and hence reflect local conditions, but the Ministry provides

TURKEY, EDUCATION IN

some elementary schools in the least prosperous and most backward places for the sake of raising national standards.

Movements. *Secularization* of education has not only been consistent with the new Republic's policy of separating "church and state" but has also been a means of escaping from the dungeon of the muslim parochial school system, which was ultraconservative in methods, subject matter, and conceptual framework. Achieved by legislation, this change was nevertheless well rooted in the decline of orthodoxy among the intellectually emancipated, and obviously necessary since organized Islâm was unable to finance the universal education which was recognized as a prime necessity to enable the new Republic to achieve stature as a modern nation.

The new alphabet, an adaptation of the Latin forms almost universal in the West and the Americas, adopted in 1928, is of great importance far less as an element of Europeanization than as an instrument of universal literacy. The Arabic letters, which had been in use, were so inappropriate to the language and so difficult to learn that children required three years to acquire a minimum of literacy and the whole educative process was accordingly retarded. This is one reason so much stress used to be placed on rote memorization. The alphabet in use is so consistent with the phonetics of the language that first-grade children achieve some facility in reading; spelling lessons are unnecessary; and the primary school period of five years is sufficient to accomplish about as much as requires six years in a typical American school.

Adult education received its greatest impetus from the adoption of the new alphabet. Within two years, 1928-1930, more than half a million men and women learned to read in evening classes, and in another five years the total exceeded 1,700,000—more than fifteen per cent of the population above primary school age. Instruction in civics and hygiene was combined with the literacy courses. While these special schools were not continued beyond 1935, most of the interested adults having taken the courses, adult education continues through lectures and study groups in the Folk Houses (*Halkevi*), agriculture institutes and bulletins, and non-military in-

struction to army recruits. The *Halkevis* are the chief centers of adult education and propaganda. The first 34 were opened in 1932 in as many provincial capitals and shire towns. Some of the buildings were rededicated *Türk Ocaks*, the centers of the Young Turk non-political, cultural activity 1908-1924. By 1941 there were 393 Folk Houses and 198 Folk "Rooms" (branches) in operation. Their nearest parallel in the United States is found in such institutions and buildings as Y.M.C.A.'s or churches or schools which are also centers of cultural activity for the entire neighborhood, with one main difference—the largest room in a *Halkevi* is not a gymnasium but an auditorium, usually with a stage suitable for dramatics, and sometimes an orchestra pit. Here are held concerts, lectures, plays, and dances. Other rooms provide for adult education classes, art and hobby exhibits and workshops, a library, and offices for the director and his staff. A standard, nine-fold program is outlined for all the Folk Houses. The nine *kols* (arms, i.e., departments) are (1) language, literature, and history; (2) fine arts; (3) dramatics; (4) sports (athletics); (5) social assistance; (6) adult classrooms and courses; (7) library and publications; (8) village welfare; and (9) museum and exhibits. Members are expected to concentrate their efforts, each in a single department; while they may act as associates in as many as two other branches, only in the one of their primary interest may they vote or become members of the executive committee.

Co-education is not yet a full-fledged social movement. Despite strong general emphasis on the emancipation of womanhood, there have been mixed secondary schools only where separate schools could not be financed. Whereas the leaders have been rightfully proud of successful co-educational schools, they have been unable to overcome the reluctance of conservative parents in the less accessible regions to let adolescent daughters attend classes with boys. A regime which has succeeded in achieving all the modernization goals for which it has conducted propaganda has not pressed this point while it was unable to provide enough schools for all. Co-education is becoming a "movement" only in that more and more girls are seeking and

TURKEY, EDUCATION IN

being permitted by their elders to enjoy it.

Government subsidy of students is a highly significant practice. Every year thousands of worthy youths receive not only tuition, but also all living expenses and pocket money for which they are indebted to the state only to the extent of working for a government agency, after graduation, at regular rates of pay two years for each year of subsidized instruction. The normal schools are operated entirely on this principle. Others include the special schools for health officers, agriculture instructors like "county agents," and the building trades school. There are also a number of boarding homes at which partial payment is in foodstuffs; other expenses are met by the Education Association, a private philanthropy.

Relations with American Education. There have been American schools in Turkey for over a century, but the attendance of Muslim Turks remained small until shortly before World War I. There are now two colleges (enrollment 1942-43, 1,500), three high schools, and a vocational junior high school conducted by Americans and supported by American philanthropy. The majority of teachers are Turks. Since 1931 not only primary instruction, but also the teaching of history, geography, civics, and sociology, as well as Turkish language and literature have been restricted to Turkish nationals. American institutions now surpass other foreign schools in the number of Turks enrolled. Since 1935 English has been the most popular foreign language in the public schools. Especially since İsmet İnönü became President, in 1938, cordiality of relations with American schools has been a policy. During recent years there have been from 75 to 150 Turks studying in graduate schools in the United States. This number is almost certain to be greater after World War II due to increases in the number of those speaking English, and in pro-American attitudes.

Statistics concerning education in Turkey require interpretation. The recent progress and the present welfare of the country are dependent more on the intellectual élite than the literacy of the masses. However, all available resources are being applied to achieve universal education. Whereas the crude literacy rates revealed in the 1927 census were 13% for males and 3.7% for females, the

census of 1935 found 23.3% of all males and 8.2% of all females to be literate. For the population aged ten and older, the percentages are 32.4 and 10.2 respectively.

The following figures show some of the progress between the first full academic year under the Republic and the most recent year on which reports are available:

<i>Schools</i>	1923-24	1937-38
Primary	4,894	6,700
Junior High	72	140
High	23	68
Normal	20	16
Vocational	44	47
Higher education	9	17

<i>Teachers</i>	1923-24		1937-38	
	Male	Female	Male	Female
Primary ...	9,021	1,217	10,483	5,292
Junior High	609 ^a	111 ^a	1,932	908
High	420 ^a	135 ^a	924	240
Normal	234 ^a	151 ^a	139	97
Vocational .	503 ^a	86 ^a	522	183
Higher education ...	349	0	739	98

<i>Pupils, students</i>	1923-24		1937-38	
	Male	Female	Male	Female
Primary ...	273,107	62,954	509,949	254,742
Junior High	7,976 ^a	2,076 ^a	53,883	20,224
High	1,622 ^a	612 ^a	16,107	4,893
Normal	1,745	783	1,209	1,598
Vocational .	2,757 ^a	619 ^a	5,088	2,486
Higher education ...	2,629	285	7,949	1,609

^a1924-25

The numbers of pupils in primary schools equal forty per cent of the boys, aged 7-12 inclusive, and twenty-two per cent of the girls. Since many rural primary schools cover only the first three grades, this means a large ratio of children is receiving enough education for literacy. M.W.W.

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TUTORIAL INSTRUCTION. Tutorial instruction usually means instruction of a single student by a single teacher—a tutor. Such instruction is common in English universities but rare in American. Harvard, Vassar, and a few other colleges have used it successfully as a means of supplementing regular course instruction in preparation for final examinations. In effect, it is also used by institutions which have independent-study plans (*q.v.*) or regular individual conferences between teachers and students.

The term also sometimes connotes drill or coaching of an uncommendable kind, whereby tutoring schools or private tutors “cram” students for specific examinations. Such tutoring is often successful for its purpose and for pupils who cannot or will not study under ordinary school conditions, but it is widely considered to result in learning which is fleeting and poorly integrated. It is particularly uncommendable when it isolates the student from the associations of group meetings and extracurricular activities.

While this drill type of tutorial instruction was probably inherited from England, it is not the type now most prevalent in the leading universities there. The term there refers to unhurried, unforced weekly discussion of the significance and background of a subject, rather than to drill upon facts and skills. Such instruction may be highly effective because it stimulates truly individualized work under regular guidance and amid inspiring associations. (See PRECEPTORIAL SYSTEM.) M.G.F.

TWELVE-MONTH SCHOOL — See ALL-YEAR SCHOOLS.

TYPE STUDY. Since it is impossible under school conditions to study every detail in subjects, or to treat subjects in encyclopedic fashion, a movement was initiated about the middle of the nineteenth century by Karl Ritter in Germany to teach typical examples of major phases of subjects. The movement took hold first in geography, but spread to other fields. In this country, Charles and Frank McMurry effectively furthered the movement through their textbooks on method.

An illustration of type study in geography is the consideration of the rise and development of commercial and industrial cities by making a detailed study of one commercial and industrial city, such as New York, and then drawing a few comparisons with the development of other cities. Through the child's study of New York he should understand the rôles played by its excellent all-year harbor and large pier space, its situation at the mouth of a navigable river, its railroad and water connections with the West, and its strategic position for world shipping. From such a study of New York and the comparisons with the rise of other cities, a general background is built up which can be used to help the child understand the growth and development of many other commercial and manufacturing cities. Obviously no one can make intensive studies of all cities, but he can study a good model, or type, of one city and generalize as to the development of other cities falling under the same classification. The same general idea can be applied in botany, biology, history, and other subjects. In botany and biology, a type plant or animal can be studied in detail, then the knowledge of the plant or animal can be applied in a general way to all plants and animals coming under the classification used for the type study.

Today, the term *type study* is seldom used. Now, the unit, problem, or contract embodies the main thought of type study under such terms as transfer and generalization, but there is seldom intensive study of one case; the general concept is developed and the information is applied on a broad scale. In science, the topic may be how large cities get their water; here the topic is developed in a general way, and then this background is used in explaining how particular cities get their water. In geography, irrigation is studied in a general way, and applied to various regions of the world. Although the term as used by the McMurrays is replaced today by a different term, the essence of the type study is embodied to a considerable extent in modern pedagogy. (See GEOGRAPHY, TEACHING OF.)

F.A.B.

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TYPES OF PERSONALITY—See **TYPOLOGICAL JUDGMENT OF CHARACTER**.

TYPEWRITING. Typewriting in the secretarial curriculum was originally vocational in its objectives. The early instruction in typewriting was based almost exclusively on the theory of part learning; that is, the individuals learned letter location through repetitive practice of nonsense drills. These letters were later practiced in isolated words and then in context material. Speed on plain copy was the principal measure of success in learning. The learning theory was "Accuracy first, speed will take care of itself."

Significant researches in the learning of typewriting contributed materially to the improvement in instructional method. The publication in 1925 of *Learning to Type* by Book brought to the attention of teachers the importance of practice of consecutive sense material in the development of typewriting ability and pointed out the significance of particular kinds of error. Experiments in the teaching of typewriting by the whole method and studies of the behavior of expert typists have developed a trend in the teaching of typewriting by word patterns rather than by isolated lettermaking movements. Newer methods of teaching typewriting, therefore, tend to make it possible for the learner to type sense material more rapidly and in a shorter period of learning time than formerly.

The widespread use of the typewriter as a means of communication and the experiments by Wood and others in the use of the typewriter in elementary schools as an aid to learning have done much to increase the popularity of typewriting for personal use. This personal use of the typewriter has the effect of placing the typewriting course in the lower grades of the high school or even the elementary school so that pupils may have an opportunity to type their school work. Furthermore, instruction in composition on the typewriter has become an integral part of instruction in typing for perfection.

The demands of employment for higher transcription ability have made necessary actual instruction in typewriter transcription. The general use of typewriting for clerical work has also increased the enrollment in typewriting courses because of the need that clerical workers have for this skill. Courses in typewriting for vocational use are most

frequently given in the eleventh and twelfth grades. Specific changes in other areas of typewriter learning have resulted in the increased emphasis upon the typist's ability to produce typewritten work of a commercially acceptable quality at commercially acceptable rates. This has led to the development of an adequate number of mailable copies as a standard for typewriting classroom work rather than the older standard of the production of perfect copies. (See **BUSINESS EDUCATION**; **SECRETARIAL EDUCATION**.)

H.R.

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TYPOLGICAL JUDGMENT OF CHARACTER.

Typology is the simplification of differences among persons by classifying all persons into a few types and then deducing a large number of their characteristics from the type into which they have been classified. From as far back as ancient Greek times peoples were divided into the *melancholic*, the *choleric*, the *phlegmatic*, and the *sanguine*. Each of these four temperaments was supposed to correspond to a certain type of physiognomy.

Kretschmer, in more recent times, also divided people into several types according to physique and claimed that each of these physical types was correlated with a certain emotional type. Kretschmer believed that tall, slender, *aesthetic* physiques were introverted, romantic, idealistic, and had a tendency towards the dementia praecox type of insanity, while the stockier and heavier physiques, the *pyknic* type, were mainly extroverted and realistic, and, if they became insane, the tendency was towards manic-depression. Kretschmer also distinguished the *athletic* and *dysplastic* types, thus keeping to the ancient idea of four types.

Other typologists exclude the physical correlation but claim that the total pattern of man's character can be typed. Spranger's well-known classification of men into the

TYPOLOGICAL JUDGMENT OF CHARACTER

theoretic, the æsthetic, the social, the economic, the political, and the religious is of this kind.

The difficulty with typologists is that they claim to type the whole character, whereas in reality men in all their richness of personality variety can never be fitted into a few categories. For any one characteristic, however, thinking, in terms of types rather than in terms of infinite variations may be helpful, even though actual measurement and observation show that individual differences form more or less of a continuous distribution, and that this is as true of emotional and char-

acter traits as it is of skills and abilities.

Jung's division of mankind into *extroverts* and *introverts* is thus still popular even though psychologists no longer believe that the trait is a dichotomous one. (See INTROVERSION.) Furthermore, introversion-extroversion is no longer considered an all-embracing trait which greatly influences every phase of character and personality in an expected direction. Popularly, character is still described in terms of types, but scientifically, character description must be made in terms of a large number of variables to bring out the uniqueness of individuality. B.B.F.

U

UNDER-PRIVILEGED CHILDREN.

Under-privileged children may be defined as (a) those who suffer from special disadvantages, (b) those who are not born under conditions of opportunity equal to the conditions under which other children are born, (c) those who live in families or under conditions below the normal standard of living.

These under-privileged children may be further classified as follows:

1. Children in rural areas.
2. Children in families of low incomes.
3. Negro children and children of other minority groups.
4. Children in congested city neighborhoods.
5. Out-of-school, and unemployed youth.
6. Children with mental, emotional, or physical handicaps.

The number of children living in families on relief was variously estimated from 11,000,000 in 1934 to 7,000,000 in 1940.

Children from families who belong to some minority racial or national grouping live under severe handicaps. These include more than 4,000,000 Negro children and about 8,000,000 children of foreign born or mixed parentage.

Nearly a million children of elementary age are not in school.

It is clear from this enumeration of the various categories of under-privileged children that these children constitute no homogeneous group, with all children having the same problems and suffering from the same kind of handicap. The child in a rural area may be under-privileged so far as his opportunity to profit from a richly varied educational program is concerned, but his emotional, physical, and social problems are totally different from those of the Negro child and even from those of the white child who lives in a poor socio-economic environment.

The influence which his being under-privileged has on the child depends on the nature

of the deprivation and on its psychological and social implications. Thus, a child from an impoverished family living in a community where all his friends are poor may suffer from some of the physical results of poverty with its accompaniment of poor food, inadequate medical care, bad housing, etc., but he may not suffer the psychological and social results of poverty as much as does the child who lives in the slum district of a suburban community.

The American emphasis on political and social democracy and on equality of educational opportunity has led to numerous attempts at improving the lot of the under-privileged child. In recent years, additional attention to the needs of these children, especially to those coming from poor socio-economic groups, has come from a growing realization of the social problems created by the neglect of these children. Thus, studies of juvenile delinquency have indicated that some neighborhoods in large cities have disproportionately large delinquency rates.

Though considerable improvement has been effected in the treatment of each of these groups of under-privileged children, they still present a serious social and educational problem for which no ready solution is available. The situation is further complicated by the fact that the solution involves more than educational procedures. Because the problems arise from so many sources, the solution must take many forms. The improvement of facilities for the education of handicapped children, for Negro education, and for rural education (*qq.v.*) all have their contribution as have also the extension of unemployment insurance and other means of improving social and economic security, the extension of recreational facilities (See ALL DAY NEIGHBORHOOD SCHOOL; RECREATION), the improvement of housing conditions, and similar improvements in living conditions. (See also M.E.F.)

UNGRADED ROOM

UNGRADED ROOM. The term ungraded room has various meanings: (1) The one-room rural school is referred to as an ungraded school or room regardless of whether it attempts to grade its pupils or whether the pupils are taught, as in the days of the "little red school house," without any standardization of offerings. (2) The classrooms that house children of low academic ability are referred to as ungraded. (3) Classrooms that house children who have created disturbances in regular classrooms and who, therefore, have been segregated for instructional purposes are known as ungraded. (4) Able children who are candidates for rapid promotion or who, due to illness or other causes, are retarded in given subjects are also taught in so-called ungraded rooms.

The ungraded school room of the rural area has had several stages of development. There was the day of the truly ungraded room or school in which a sequence of studies, taking children from the first grade through the eighth, was unknown. Children enrolled, attended a few weeks or a few months, and left. They brought whatever books the family happened to own. They studied these books without reference to books being studied by other children. This represents, perhaps, the truly ungraded room or school.

Then, influenced by urban school practices, attempts were made to grade the program of studies so that definite school work was required in the first, second, and on through the eighth year of the elementary school; courses of study were devised, and uniform textbooks came into being. The children of this recent type of one-room rural school are graded, but the school is still referred to as ungraded. Such a school faces the problem of many recitations of short duration. Modern rural education seeks to meet the needs of pupils in these ungraded rooms by a happy combination of individual and group instruction whereby larger groups of pupils may work together upon many projects and whereby the individual may receive the particular assistance needed to enable him to participate in the group. (See RURAL EDUCATION.)

The ungraded room for pupils of low academic ability originally enrolled pupils ranging in age from 8 or less to 16 or more; they were segregated from other children; they were given an unusual amount of hand-

work; and they were given a program which was designed to make them happy. Today, these rooms are commonly grouped two or more to a center. The children are a recognized part of a regular elementary or junior high school; their school program is aimed at making them better able to do those things they are likely to do anyway in the particular community of which they are a part; certain abilities that they have are being recognized and used in the school's activities. Some educators insist that even this amount of segregation should not exist. Other educators assert that this recent procedure is not segregation any more than separation of a first grade group from a second grade group is segregation; they insist that a school program has been provided that best meets the needs of these children just as the work provided for the second grade meets their needs more adequately than it would meet the needs of children just entering school for the first time.

The ungraded room for disciplinary problems is provided in some school systems, but has not had wide acceptance. It has tended in the past to be a room for punishment rather than for diagnosis and help. As a result, children sent to such rooms have been more or less stigmatized. The few school systems that have established these rooms have tended to organize them solely for boys. The rooms are the by-product of urban education and are usually found only in large elementary and junior high schools; they are often located in basement rooms and supervised by a man known more for his physical ability than for his human understanding of boys who have "cracked" under typical school discipline. Theoretically, this type of ungraded room aims to help these boys so that they will be able to return shortly to their regular school grades.

The ungraded room is rarely used for children of good academic ability. When used, its aim is to give these children additional help so that they may "skip" a grade or "make up" work that they missed because of absence from school for sickness or other causes. Sometimes an ungraded room will house two or more of these various types of children. (See ONE-ROOM SCHOOL.) A.O.H.

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UNIFIED STUDIES. *Unified studies* refer to the alternate teaching of blocks of the related subject matter of two subjects from separate areas, in which the carrying continuity is usually determined by one of the subjects. For example, the chronological sequence of history furnishes the organizing base of a study of history and literature. Such studies are usually taught by two teachers, one representing each subject but working simultaneously with the pupils over a double period. Thus the time pupils spend on each subject is no greater than if the subjects were taught separately. Teacher load may or may not be increased.

The unified studies approach to curriculum revision originated in secondary schools in the early 1920's as an improvement on the schemes of correlation (*q.v.*) then in practice. The best planned correlations were unsatisfactory in practice because of the separation of classes and the failure of each teacher to know how the relationships were developed by the other. Bringing the two teachers together in one class with the same pupils for a longer time appeared to be a solution of this difficulty. Thus the early attempts to make planned correlations more effective led to the beginning of the unified studies approach.

Teachers of such unified courses found the arrangement unsatisfactory, however, because of the dominating control of one of the unifying subjects. They began fusing subject matter within the two subjects and drawing upon other subject matter within or without the two general fields. Soon other subjects were added as a regular part of the unification. Illustrations of this are Social Studies, English and Art or Science, English and Mathematics or Home Economics, English and Art. Since 1935, experimental secondary schools have increased to three the number of cooperating teachers, the number of subjects represented, and the number of periods per day. The result is called a *core curriculum* (*q.v.*) of the subject type. Thus

unified studies are now frequently called a core, broad-fields, or integrated curriculum.

There are two main types of unified studies. First and more prevalent is the type of unified study which adheres closely to the original subjects and the subject viewpoint. The organizing principles are within the subject matter and controlled by the teachers, even though much new material may be added. Culture-epoch courses, organized on a chronological basis and the adult needs approach to the essential material, are illustrations. The second type of course derives much of its content from a study of the immediate problems of learning of the enrolled students who cooperate with the teachers in the management of the course. Such a unified studies course approaches the qualitative learning of the experience curriculum and is advocated by many persons as the best practical departure from the subject organization. Others believe that unified studies reorganize too small a part of the total school program to have any permanent effect in improving the curriculum. (See CURRICULUM.) L.T.H.

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UNION OF SOCIALIST SOVIET REPUBLICS. EDUCATION IN. In the school year 1938-39, just before World War II, the total population of the U.S.S.R. was 170,467,186 and the enrollment in the regular schools—excluding kindergartens and playgrounds, and special courses—was 34,173,200. Of these, 21,333,500 were in primary schools, 12,236,800 in secondary schools, and 602,900 in higher institutions, which are respectively 1.9, 10.7, and 3.6 times the per capita enrollment in 1913-14, under the Czarist regime, just before World War I.

The U.S.S.R. primary school admits children at the age of eight; it is not exactly a beginners' school, for the ability to read is a prerequisite for admission. It is being preceded more and more by systematic pre-school training in kindergartens for three to seven-year-olds (approximate 1938 registration, 4,000,000; all children to receive such training by 1942, according to plan). Furthermore, the primary school sometimes in-

UNION OF SOCIALIST SOVIET REPUBLICS

cludes a preparatory zero-class for seven-year olds. It has four grades and brings the children up to approximately the seventh or eighth grade of the American elementary school.

The Soviet secondary schools give a *general six-year course*, which is divided into two equal halves. The first three years are known as the *incomplete secondary school*, corresponding in program to our junior high schools, and the last three years, the *complete secondary school*, being a year or so in advance of our senior high schools. Teachers in *incomplete secondary schools* must have two years of higher pedagogical training, and those in *complete secondary schools*, four years. The *technicums* admit students from the *incomplete secondary schools* and offer two years of general education and two years of special training, graduating primary school and kindergarten teachers, nurses, medical and laboratory assistants, and a variety of "lower rank" technicians in agriculture, industry, distribution, communication, and transportation. The *workers' faculties*, taking students of eighteen or older, are essentially short-cut preparatory schools for capable adult workers lacking a secondary education and desiring to enter an institution of higher learning, while the *factory apprentice schools* are designed for adolescents, fifteen to eighteen years of age, needing a special and general secondary school training for their work. Attendance at the *workers' faculties* and the *factory apprentice schools* is diminishing, as incomplete and even complete secondary education is gradually becoming compulsory.

Higher institutions in the U.S.S.R. admit students from eighteen to thirty-five or forty years of age who have a *complete* secondary education. They afford from two to six years of study in some professional or general institute, academy, or faculty. Most of them offer also three years of individual post-graduate work, leading first to the "candidates" degree (comparable to the American Master's degree) and then to the Doctor's degree. In 1938, there were 708 institutions of higher learning. There were 91 in 1914.

Finally, one may include the enrollment of 13,533,500 students in special courses, mostly "liquidation of illiteracy", and "political education" class for adults; and some statistics on the press are also relevant. In 1938 Soviet

libraries possessed 146,602,900 volumes, and in the same year 692,700,000 copies of new books and pamphlets were published. The average daily newspaper circulation was 37,520,000. Nearly one-third of the books in the U.S.S.R. and one-fourth of its newspapers (according to titles and not total circulation) are published in 94 languages other than Russian.

Soviet education for many years was very "progressive" in methodology. It used, from kindergarten to university, what was known as a "complex-theme-laboratory-brigade" method, essentially a plan of mostly spontaneous projects and often fluid groupings. There were no textbooks, no single assignments, no individual responsibility, frequently no fixed class and teacher, and of course no marks and failures. Soviet educational research was busy collecting empirical data on students' action and discussing optimum composition and interpenetration of groups, and the best socialist "complex themes" at different levels of development and degrees of specialization. However, the results of these methods proved so unsatisfactory—sometimes described as disastrous—that in 1932 the entire practice was utterly condemned and summarily abolished. Since then Soviet educational methods have been much more conservative. The "planned lesson" has become the basic unit of instruction; classes and teachers are invariably permanent; courses are mostly prescribed; and assignments and textbooks are very definite and specific. In 1936 alone 126,000,000 textbooks were published for primary and secondary education. There is a four-category system of marking, as well as such familiar practices as final examinations, failures, competitive entrance examinations, exemptions for good students, and rapid promotions. In general, contemporary Soviet methods of instruction differ but little from those of the United States. To be sure, a greater emphasis on team work and so-called socialist competition does exist, but the instruction itself is focused upon the individual whose knowledge of facts, mastery of material, and well-rounded comprehension of subject-matter are constantly emphasized, tested, and rewarded—rewards and punishments being particularly easy and effective, as so many students receive stipends from the government.

UNION OF SOCIALIST SOVIET REPUBLICS

Stipends and scholarships in the U.S.S.R. deserve special mention. Stipends increased yearly in number and amount until 1939, when ninety-one per cent of all students in *technicums* and higher institutions were being benefitted by amounts ranging from 100 to 400 rubles (a ruble is officially about 20 cents) per month. The 400 rubles were received by post-graduate students whose allowance were thus about ten per cent higher than the average wages of a Soviet worker. However, in 1940 it was decreed that only students excelling in their studies, variously estimated from one-third to one-half of the entire students body, would be given stipends. Furthermore, tuition fees of 300-500 rubles a year for institutions of higher learning and of 150-200 a year for the last three grades of secondary schools were introduced. Scholarships were unaffected by the decree, and they are quite generous and plentiful in the U.S.S.R. There are 1000 scholarships of 1000 rubles a month and 2000 of 500 rubles a month for regular students of higher institutions, besides 100 of 1000 rubles a month for post-graduate students preparing for the "candidate's" degree and 50 of 1500 rubles a month for students preparing for the Doctor's degree. A thousand rubles a month is more than a university instructor earns and 1500 rubles a month equals the salary of a full professor. One may also add that the Soviet government awards each year 33 first prizes of 100,000 rubles each, 25 second prizes of 50,000, and 30 third prizes of 25,000 rubles for various research publications, discoveries, inventions, and works of art and literature. In all, studying in the U.S.S.R. is certainly not without individual competition and incentive.

Another phase of education in the U.S.S.R. which has recently undergone drastic changes is the use of intelligence tests. In the first years of the Soviet government these tests were enthusiastically accepted and widely acclaimed. They were hailed as powerful objective weapons in the socialist reeducation of the masses. The Binet scale was not even re-standardized, but merely translated into Russian—and other languages of the Soviet peoples—with only such understandable modifications as the change of "There are three differences between a president and a king. What are they?" to "There are three differ-

ences between a proletarian and a bourgeois republic. What are they?" A larger number of "special" classes of "difficult", "border-line", and "dull normal" pupils was set up on the basis of test questions, of which many were foreign to Soviet children. It was obvious that such an uncritical practice would not continue long and would eventually clash with Soviet social theory. A dramatic instance was provided when a wide testing program in Middle Asia disclosed the average IQ's of the native children to be in the 80's and even the 70's. This immediately provoked the sharp comment that educational psychologists uphold "racistic" doctrines. Then, it was found that the subnormal classes consisted mostly of children of poorer peasants and factory workers, which again aroused the criticism that intelligence testing tends to perpetuate economic class distinctions, sets up IQ castes, and obstructs the ideals of a classless society. The belated suggestion that the tests be properly standardized on Soviet populations and that IQ differences need not result in different teaching units was little heeded. In 1936 the Central Committee of the Communist Party merely abolished all intelligence testing of school children and ordered all school psychologists to retrain themselves for other occupations. It is interesting to note that at present intelligence testing is condemned even if one maintains that differences in scores are products of the environment. It is simply argued that psychometrics in general is a static, fatalistic doctrine, detached from the dynamics of mental development and engaged in piling up artificial, "casuistical" tasks which do not reflect reality and which only minimize the true and creative rôle of the teacher in school and outside school.

The distinctive features of Soviet education stem directly from its very close and conscious gearing to the economic needs and political demands of the country and the philosophical views of Communism. To a large extent, only those subjects are taught and those attitudes fostered which meet or emphasize these objectives. This results, on the one hand, in an education that is rather vocational or applied. (Soviet educators refer to it as *polytechnical*.) Studying and working are so concretely connected, and programs and interests are so much molded by

UNION OF SOUTH AFRICA, EDUCATION IN

future jobs—which, by the way, are always obtainable or even pre-determined—that some traditional material is kept out or under-rated, and some is made to serve direct practical needs. On the other hand, these very objectives give the same education a general or even academic tinge, inasmuch as each school must inculcate a certain general doctrine and must relate itself to social ideals. Soviet children often exhibit uncanny philosophical and social sophistication, and Soviet specialists probably possess more “outside” knowledge than any comparable group in any country. In all, Soviet education appears to have produced, at least in the younger generation, a way of doing and thinking and an integration of skill, knowledge, attitudes, values, and morale which have shown, as events prove, a remarkable cohesive consistency and a redoubtable resistance to disruption. Basically, the difference between education in the U.S.S.R. and in the U.S.A. is the difference between a land in which there is only one philosophy and one in which many and even conflicting philosophies are not only possible but do exist.

G.S.R.

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UNION OF SOUTH AFRICA, EDUCATION IN. The Union of South Africa is a dominion of the British Commonwealth of Nations, comprising the provinces of Natal, Transvaal, The Cape of Good Hope, and the Orange Free State. In area the Union is approximately 472,550 square miles, with a total population of more than nine and a half million, of whom 20.9 per cent are “European” (“persons of pure European descent”), and the rest (79.1 per cent) “Non-European” (“Natives—pure-blooded aboriginals of the *Bantu* race,” 68.8 per cent; Asiatic—natives of Asia and their descendants, mainly Indians,” 2.3 per cent; and “Coloured

—Cape Coloured, Cape Malays, Bushmen, Hottentots, and all other persons of mixed race,” 8 per cent.)

“European” and “Non-European” children do not attend the same schools. There is complete segregation. European education is mainly public or state education, while non-European education is mainly state-aided education, partly supported and controlled by mission enterprise. It is necessary, therefore, to consider the education for Europeans and the education for non-Europeans separately.

European Education. The Act of Union (1910) by which the four provinces united to form the Union of South Africa, introduced a unique separation of control over and responsibility for education between the Union government and the provincial authorities. Only “higher education” (i.e. the universities) was made the responsibility of the Union government, while “education other than higher” was relegated to the provinces. Since 1910, however, the Union government has from time to time stepped in and taken over certain educational functions which it considered should, in the interests of the nation, come under national control. Moreover, the provinces were financially too weak to finance certain types of education which otherwise would have been their responsibility. Thus, such types of educational activities as industrial education, child welfare, agricultural, vocational, technical, and special education were by successive acts of legislation declared by the Minister to fall under “higher education,” and so under the Union government. Though originally the term applied solely to university education, it now includes educational services from the kindergarten to the highest post-graduate classes of the universities.

Approximately 94 per cent of the European children attend public schools. Traditionally, the state or public school is the school most children attend whatever their rank or economic position. The private schools, attended by a very small minority of the children, are very little different from the public schools in organization and curriculum, mainly because their pupils generally take the same state schools examinations the other students take.

Primary and Secondary Education:

In each province the executive and legislative authority over primary and secondary education (including the training schools for teachers) is vested in the Provincial Council and its Administrative and Executive Committee. A superintendent or Director of Education as head of the Department of Education, is the chief responsible officer. Under the director is a staff of inspectors who control the inner working of the schools.

An interesting feature of educational control in the Cape, Transvaal, and the Orange Free State Provinces is the Local School Committee elected for each school by the parents, whose chief function (in conjunction with the District School Board) is the selection of teachers subject to the approval of the Department where the appointments are made. There is also a District School Board which deals with general administrative matters pertaining to all the schools in its district. The fourth province, Natal, has no local educational authorities; all matters are controlled by the Department of Education at the provincial capital.

While there is some variation among the provinces, the following features of primary and secondary education are generally common to all:

1. Compulsory attendance from seven to fifteen or sixteen years inclusive. (Exceptions are made for students apprenticed in a recognized trade, in which case students may leave earlier). Education is generally free up to the last compulsory attendance age except in Natal where only primary education is free, and in the case of certain special schools.

2. Students on the various levels of secondary education are subject to state examinations of two general types—the Junior Certificate Examination given at the end of the eighth standard and the Senior Certificate (or School Leaving, or Matriculation Examination) at the end of the final tenth standard. These examinations are under the control of the provincial education departments and are administered under the direction of commissions consisting generally of representatives of school inspectors, normal schools, secondary schools, universities, and the Union Joint Matriculation Board. Students cannot continue in an advanced course of education

beyond the secondary school level without having passed a senior examination.

3. No sectarian or doctrinal religious education is allowed in the public schools. However, courses in Bible history—subject to a conscience clause—are generally provided, and the practice of opening the school day with a prayer and a reading from the Bible is followed in all public schools.

4. Teachers are educated in training institutions maintained by the provinces, and are licensed after having pursued satisfactory courses of training and passed the official examinations for their respective grades. The types of teacher-training courses and certificates vary; the practice followed in the Orange Free State may be cited as typical:

“The minimum requirement for appointment as a teacher in public schools is the possession of the Lower Primary Teacher’s Certificate . . . or its equivalent . . . Professional Teacher Certificates are of several classes—Lower Primary, Higher Primary, Advanced Primary, Professional Technical, and Secondary Grades I and II. The minimum requirements for the admission of candidates to these examinations are as follows:—Lower Primary: Matriculation or equivalent certificate and two year’s training at the Normal College; Higher Primary: First year B.A. course in certain specified subjects or one year at the Normal College; Infant Teacher’s Certificate: Lower Primary or Higher Primary Teacher’s Certificate and one year’s training in Infant School work at the Normal College; Advanced Primary: Higher Primary Teacher’s Certificate or equivalent. second year degree course and five years’ experience . . .

The Secondary Teacher’s Certificate is issued without further examination as follows:—

Grade I. To teachers in possession of a) the B.A. degree or equivalent academic qualifications plus the M.Ed. of the University of South Africa or equivalent professional qualifications, or b) the M.A. degree of a recognized university, or equivalent academic qualifications plus any recognized professional teacher’s certificate . . .

Grade II. To teachers in possession of the B.A. degree of a recognized university

UNION OF SOUTH AFRICA, EDUCATION IN

or equivalent academic qualifications, plus any recognized professional teacher's certificate . . .

An example of requirements given in more detail is the following:

"Candidates for admission to the Higher Primary Teacher's Examination must produce evidence to the satisfaction of the Board—

- a) that they have followed a first-year course at a recognized university or university college and presented themselves for examination in the following four subjects, and that they have passed the prescribed university or college tests in at least three of these subjects at one and the same examination:
 - i. first official language; ii. second official language; iii. Biological Science . . . iv. History or Geography or Mathematics or Physics or Chemistry or Geology;
- b) that they have attended a course of at least two years' duration at an approved institution.

The use in South Africa among the Europeans of two official languages, English and *Afrikaans*, brings with it educational problems unique to an officially bilingual country. About two-thirds of the Europeans speak both languages. Classified according to home language ("mother tongue") there is a wide difference between rural and urban areas. (Urban areas, 53 per cent English, 41 per cent *Afrikaans*; rural areas, 84 per cent *Afrikaans*, 14 per cent English). Most of the schools use one of the two languages as the medium of instruction and teach the second in terms of the first. According to statistics of June 1939, about 35 per cent of the students in primary and secondary schools were taught with English as the medium of instruction, 60 per cent with *Afrikaans* as the medium of instruction, and about five per cent with both English and *Afrikaans*.

University Education: The Union of South Africa has five universities.—South Africa (an examining body), Cape Town, Stellenbosch, Witwatersrand, and Pretoria, with an average yearly total enrollment of 10,505 students (1939), 261 full-time professors, 431 full-time lecturers and assistants, and 392 part-time professors, lecturers, and assistants. The cost of college and university education

is borne partly by student fees (39.15 per cent), partly by government grant (42.79 per cent), and partly by other institutional income (18.04 per cent).

The universities and university colleges offer a wide variety of courses of study leading to many types of degrees, from the academic arts and sciences to degrees and diplomas in medicine, agriculture, industrial chemistry, commerce, and social work. In addition, most of the universities and university colleges are actively engaged in extension work in the form of public lectures, social welfare activities, vacation courses, and the rendering of advice and assistance to other public agencies. For example, the Department of Educational Psychology of the University of Stellenbosch undertakes the observation and treatment of psychological and educational defects of school children, and assists the schools in the classification of children; the University of Witwatersrand is associated with the Transvaal Worker's Educational Association in giving extension lectures and tutorial classes.

Matriculation examinations are controlled and conducted by a Joint Matriculation Board consisting of representatives of the five universities, the Provincial, Union, South West African, and Southern Rhodesian Education Departments, and of teachers of public and private secondary schools. Professional examinations in law, surveying, civil service, etc., are administered by a Joint Committee for Professional Examinations composed of ten representatives from the universities and five appointed by the Governor-General.

Technical, Vocational, and Special Education:

The Union Department of Education administers technical colleges, industrial schools, trades and housecraft schools, and schools for the deaf and blind under the extension of powers previously mentioned. In addition, the education of the mentally defective children is administered by the Commissioner of Mental Hygiene under the Department of the Interior.

There are eight technical colleges with a total of 2,385 full-time and 12,492 part-time students (1939) of whom the majority pursue commercial courses. There are also a total of 37 (generally post-primary) state voca-

tional schools, of which sixteen are Trades and Commercial Schools, twelve Housecraft Schools, and nine so-called Industrial Schools to which children are committed for reasons of destitution, delinquency, or neglect.

Non-European Education. Non-European education is mainly state-aided education partly supported and controlled by mission enterprise. A distinction is made in the provisions for Natives (pure-blooded *Bantus*), and Coloured and Asiatic students (Indians, Cape Coloured, Bushmen, Hottentots, and mixed races). Native education is under the control of the provincial education departments assisted by the Chief Inspector of Native Education, and an advisory board representative of the missions controlling the schools. There is a growing movement to place native education under the direct control and administration of the government. A movement toward secularization is also evident among the natives themselves, who would like to obtain a larger direct share in its management. However, the overwhelming majority of Native schools throughout the Union are aided mission schools under the local control of a missionary manager. In the Cape many managers of schools are Native ministers; in the other provinces it is ordinarily required that managers shall be Europeans nominated by the missions concerned. About 6.5 per cent of the total Native population attend school (as against 19.7 per cent among Europeans), of this number only 2.24 per cent are enrolled in post-primary classes (as against 19.4 per cent among Europeans). The character of Native education is distinctly different from that prevailing in European schools. For instance, the following are some of the distinguishing features of Native education in the Province of Natal: a) an emphasis upon the study of the *Zulu* language, b) a bias towards the study and practice of agriculture, promoted by means of nature study and the cultivation of school gardens, c) an attack on superstition by means of practical hygiene, and later on by the study of physiology, and d) the improvement of manual skill by means of indigenous arts and crafts.

While native students are not barred from following courses at the European university institutions, very few actually do study

there. The only native institution doing work of a university standard is the South African Native College at Fort Hare, which enrolled 162 students in 1939. The principal courses of specialization are theology, education, and medical aid. The course for the training of native medical aids is a recent addition. The course includes scientific training and practical work in a large public health or hospital area. Candidates are carefully selected and will be employed upon graduation as medical aids in native areas.

Schools for Asiatic and Coloured students are administered by the provincial education authorities. Only in Natal, where the number of Asiatics is comparatively large (there are few Asiatics in the other provinces) is there a separate administration for Asiatic and for Coloured education. About 15.8 per cent of the Indian and Coloured population are enrolled in schools, but only 2.59 per cent of the school population are enrolled in post-primary classes. Unlike Native education, the curriculum in Indian and Coloured schools generally follows that of European schools.

L.P.T.

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UNION SCHOOL DISTRICT. The legal designation of school districts as union school districts is used in New York State and to a lesser extent in some others. The specific type of district referred to is the union free school district which was created by act of the legislature in 1853 as a step in the consolidation of small school districts and for the purpose of levying taxes for the support of a high school. Some of the union free school districts in New York are city and village districts, and some are rural districts. In 1936-37 there were ninety-seven such districts in villages of 4,500 population and over, and 474 classed as rural districts, open country, and villages under 4,500 population.²

In a more general sense, union school districts are districts formed by the union of two or more districts for some specific purpose; supervision, or the establishment of a high school. Examples of such districts are the

supervisory union in New York, the New England States, the supervisory districts in Nevada, and superimposed high school districts in California, Illinois and other states.

The supervisory union in New York and in the New England states is an intermediate unit between the local district and the state, established primarily for the purpose of school supervision. In New York the supervisory union is headed by a board of directors, two of whom are elected from each of the districts composing the union. The board meets once every five years for the purpose of electing a district superintendent. The district superintendent's duties are chiefly advisory.¹ (See SUPERINTENDENT OF SCHOOLS.)

In the six New England States supervisory unions are formed by two or more towns under a school committee composed of the several school committees or a joint committee composed of one member from each. The duties and responsibilities of the joint committee vary, but usually they employ the superintendents and adopt policies concerning the distribution of his time and determine the proportion of his salary to be paid by each of the towns in the union.

In some states unions are under the direct supervision of the state. In New Hampshire appointment of superintendents is made by the state board of education on recommendation of the local committees, and in Connecticut sixteen unions are administered by state supervisory agents.¹ In addition to the county as an intermediate unit, there are five supervisory districts in Nevada, each composed of from one to five counties. Each supervisory district or union has a deputy superintendent appointed by the state department of education.

Another type of union school district is the superimposed high school district common in California and Illinois. This type of district was organized to offer high school facilities in areas where many of the small districts could not maintain schools beyond the eighth grade. Such districts are usually controlled by a separate board of education distinct from those governing the elementary school in the area composing the high school district.

In districts where a separate union school is maintained it is usually a centralized ele-

mentary and high school or a separate high school. All of the various types of union districts are examples of an attempt to overcome the disadvantages of the small school district. (See also CENTRALIZED SCHOOL and CONSOLIDATION OF SCHOOLS.) W.C.R.

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2. L. H. GULICK, *Education for American Life*, New York State Regents' Inquiry into the Character and Cost of Public Education (McGraw-Hill Book Co., New York, 1938).

UNIONIZATION OF TEACHERS—See TEACHERS UNION.

UNIT—See CREDIT; UNIT PLANNING AND TEACHING.

UNIT ASSIGNMENT—See ASSIGNMENT.

UNIT COSTS—See FINANCE, SCHOOL.

UNIT LEARNINGS — See MORRISON PLAN.

UNIT PLANNING AND TEACHING.

A unit may be either *an experience* or *a body of subject matter*, according to the philosophy accepted for curriculum development. According to Morrison, a unit of work is "a comprehensive and significant aspect of the environment, or of an organized science, capable of being understood rather than capable of merely being remembered." Bruner says that "a unit is so organized that everything that is included in the way of content, the organization itself, and the method of presenting it to the class is for the purpose of making it possible for the child to grasp the big understanding or theme that is back of it." A unit of work, as it is conceived by the staff at the Lincoln School (Teachers College, Columbia University), is "a series of worthwhile experiences bound together around some central theme of child interest. Some incident serves as a starting point to arouse such an interest; activities of a compelling nature further stimulate this interest; information from almost every branch of knowledge is drawn upon to answer the questions which arise; individual expression of this interest is encouraged through various media." Jones, Grizzell, and Grinstead's *Units of Adaptation*, which are defined as "a group or

chain of planned, coordinated activities undertaken by the learner to obtain control over a type of life situation" are contrasted with "Units of Subject Matter" and "Center of Interest Units." Others would designate such units as "integrated," a term causing some confusion because it utilizes a word that has definite psychological connotations. Still others use the term "experience unit" to describe the concept involved. In this discussion we shall use the term "integrative experience" unit.

Many curriculum workers are coming to look upon a unit of work as a complete experience based upon a meaningful situation in child or adult life. The unit seeks to develop a fusion of mental, emotional, and sensory experience; it proceeds in a physical and social setting that is related to life activities; it is directed toward the accomplishment of a goal that results in some improvement in living. This point of view emphasizes units of human experience, child or adult, as the basis of learning units.

A unit may include such varied experiences as observing, discussing, reading, listening, playing, singing, analyzing, and others. Some units may be carried on largely outside of the four walls of the school, such as the study of an apartment house in the course of construction. Some units in which life activities are introduced may be carried on in school such as painting a chair. Some activities may be carried on in school by introducing actual situations artificially, such as making a bookcase. Some activities may consist chiefly of observing and recording, such as the identification of common birds from specimens or pictures. Some activities, although they utilize actual printed materials, may be entirely mental, such as calculating a fair rental for an apartment from data available.

To discourage the extreme formalization of units, and to encourage teacher-initiative, many curriculum workers place emphasis upon *resource units* as contrasted with so-called *teaching* or *learning units*. This type of guide sets forth many suggestions and possibilities, both as to means of discovering and meeting the needs of pupils within some broad area, and of offering suggestions for appraisal and evaluation. The unit that is prepared for distribution among teachers should be a clear and graphic account of the

total experience, together with any usable aids for the teacher, such as lists of materials and references. Usually, it is a description of activities which have been put into practice experimentally and later revised. Some units, particularly those which are merely narratives of successful projects, are recorded day by day, or after the unit has been completed. As a rule the account emphasizes what the pupils do: their procedure as they go from step to step, their method of organizing the enterprise, the journeys they make, the nature of their preparation out of class, the direction their inquiry takes, the experiments they perform, the reports they plan and execute, the things they build, the exhibits they plan, the phenomena they observe, the research they make, and so on. During this learning activity, the teacher's part is also described; the suggestions he makes, the leading problems he presents, the demonstrations he makes, the guidance he gives; the emphases he makes, the information he contributes, and so on. Thus, a unit of work is essentially a record of things to do, and not an outline of information to be imparted. It is an account of a successful experience that serves as a suggested procedure which an average class under an average teacher may adapt, if it so desires. The unit of work is set up as to the smallest subdivision of the whole curriculum.

A unit of work is contrasted from a lesson plan by the following:

	<i>Unit of Work</i>
Duration	—Lasts several periods, several days, several weeks
For whom?	—Usually designed for general use
Size	—Is usually a full statement
Unity	—Has opportunity for unity
Nature	—Can have a complete life experience
	<i>Lesson Plan</i>
Duration	—Usually covers one period
For whom?	—Written for personal use
Size	—Is usually a brief outline
Unity	—May break off abruptly
Nature	—Is a small subdivision of subject matter

For convenience the two principal types of units are designed as: (a) subject-matter units, and (b) integrative experience units. Subject matter (subject, theme, broad areas of living) units include those organized around usual textbook chapters or topics; units organized around major generalizations, principles, or themes; and units organized around aspects of the environment, such as air, water, sky, or climate.

UNIT PLANNING AND TEACHING

Integrative experience units are less formal and are based more on the immediate interests of pupils or on their immediate purposes, or on a combination of these.

Some subject-matter units draw entirely upon one subject field. Others draw, at least to some extent, upon more than one subject field. Some experience units draw primarily or entirely upon one subject field. However, most experience units involve information from several subject fields. Units which cut across subject fields are taught by one teacher or cooperatively by two or more teachers.

As it is discussed in this statement, a unit consists of purposeful (to the learner), related activities so developed as to give insight into, and increased control of, some significant aspects of the environment; and to provide opportunities for the socialization of pupils. The key words and phrases in that definition are *purposeful to the learner, related activities, insight, increased control, significant aspect of the environment, and socialization*.

Criteria for units include:

1. The unit should involve intimate contact with aspects of social life that are of fundamental significance today.
2. The unit should be so developed as to acquaint pupils with the crucial data, relationships, conditions, problems and the significance for human welfare of the field studies. This requires more than a hasty superficial study of any important topic which is selected.
3. The unit should provide for a large amount of actual experiencing by pupils, and for abundant contact with first-hand source materials.
4. The unit should provide pupils with abundant opportunities for clarifying and enriching the conceptions gained, through various forms of individual and group expression. Creative expression through meaningful dramatization, construction, drawing, sketching, painting, modeling, pageantry, puppetry, music and other means is a significant part of the process of acquiring understanding.
5. The unit should continually stimulate mental activity on the part of pupils. This should reveal itself in the recognition of programs and in their thoughtful consideration. It is revealed in purposing, planning,

executing, and evaluating on ever higher levels.

6. The unit should provide for continuous sharing of purposes, activities, and achievements in an atmosphere of cooperative effort.

No two individuals follow identical plans in developing a unit, and for this reason it seems inadvisable to set down a fixed outline to be followed in reporting work.

A summary of the various patterns used in connection with the outline for a unit has been made by Bawden. He reported the following principal categories: (1) Aims, (2) Preview, (3) Outline of Content, (4) Materials, (5) Suggested Learning Activities, (6) Suggestions for Teachers, and (7) Suggestions for Evaluation.

The principal problem in curriculum development is that of "integration" and "synthesis." While curriculum units are often for purposes of "analysis," the relationship of the unit to the "whole" of which it is a part should be clearly recognized and understood. On the other hand, definiteness requires that the unit be conceived as a body of closely related facts, generalizations, and principles, so organized as to contribute to the understanding of an important aspect of life. The relationship of the unit to larger objectives and experiences should be understood.

It should be possible to present the unit as a whole, in an approach or preview concise enough to give the learner a clear conception of it before he undertakes his study. The aims and purposes should be definitely stated and clearly made, not only to the teacher but also to the pupil.

All pupils should be able to master the essential learnings necessary to attain an understanding of the unit. Because of individual differences among pupils, the unit must contain supplementary and collateral material to allow freedom in adapting the work to the group.

W.H.B.

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UNIT SHOP. The term "unit shop" may apply to school shops that are (1) of an industrial arts nature or (2) vocational in character. A unit industrial arts shop is a school shop in which only one kind of industrial arts education is given—metal work, or woodwork, but not a combination of these or others. Unit industrial arts shops are commonly found in the larger schools where there are enough pupils to warrant operating a series of shops. The students are usually rotated through the series of unit industrial arts shops at the junior high school level before they specialize in one of them in the senior high school, or transfer to vocational schools or classes.

A unit shop in vocational education is a shop in which a single *trade* or occupational pursuit is taught. For example, a vocational industrial school may have one or more unit shops in machine shop practice, electrical work, aviation sheet metal, air conditioning, and house carpentry. These unit shops are to be distinguished from the unit industrial arts shops just mentioned and also from the "general industrial schools or classes." (See also **GENERAL INDUSTRIAL SCHOOL** and **INDUSTRIAL ARTS EDUCATION**.) F.T.S.

UNIT TRADE SCHOOL. All-day vocational industrial schools, operated in cooperation with the U. S. Office of Education and federally aided, are divided into two types: Type A, which includes Unit Trade Schools and General Industrial Schools (*q.v.*), and Type B, which embraces the General Vocational Schools. Type A schools seek to give thorough and broad training for skilled trades; while Type B schools are for persons seeking to prepare for or advance themselves in, semi-skilled or highly specialized forms of work. For example, persons seeking to prepare for such skilled trades as aviation mechanics, tool and die makers, shipfitting, and machinists, would get their training in a Type A school, if the instruction is to be secured in an all-day vocational school operated on a federally aided basis under the Smith-Hughes or the George-Deen Acts; while men and women receiving conversion training that will enable them to shift from jobs as machine operators in one industry to jobs in other industries, or *vice-versa*, may receive such training under a Type B program in a

general vocational school. (See **VOCATIONAL EDUCATION**.) F.T.S.

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See also the *State Plan for Vocational Education* for the state concerned, usually issued by the State Department of Education.

UNIT TYPE OF ORGANIZATION—

See **ADMINISTRATION, SCHOOL**.

UNITED STATES COMMISSIONER OF EDUCATION. In the basic law originally creating the Department of Education (now known as the United States Office of Education [*q.v.*]) in the federal government, two general purposes were cited as the function of this new agency, namely, to collect and diffuse educational statistics and facts, and to promote the cause of education in other ways.

To carry out the purpose of the act, Congress authorized an appropriation for a Commissioner of Education and two clerical assistants. From this small beginning, the Commissioner and his regular staff in 1937-38 numbered some 222 persons, exclusive of staff workers for the administration of the Civilian Conservation Corps program and other emergency relief projects.

The act further provided that "it shall be the duty of the Commissioner of Education to present annually to Congress a report embodying the results of his investigations and labors, together with a statement of such facts and recommendations as will, in his judgment, subserve the purpose for which this Department is established."

In the assumption of these general responsibilities the several Commissioners over the years have pioneered in various types of educational endeavors and the important services of the agency have expanded increasingly. The safeguard observed by each of the Commissioners has been to conceive of the functions of the office as those of stimulation and suggestion rather than of compulsion.

The duties of the U. S. Commissioner of Education at the present time deal principally with the administration of three general types of service carried forward with the aid of his staff: (1) research and informational, (2)

advisory and consultative, and (3) promotional.

The Commissioner is appointed by the President of the United States, by and with the advice and consent of the Senate, and his term of office is at the discretion of the President. Since 1929, when the Office of Education was transferred to the newly created Federal Security Agency, the Commissioner has served under the administrator of that agency.

During the seventy-five years of the existence of the Office of Education there have been ten Commissioners, beginning with Henry Barnard (1867-70), then John Eaton (1870-86), N. H. R. Dawson (1886-89), William T. Harris (1889-1906), Elmer E. Brown (1906-11), Philander P. Claxton (1911-21), John J. Tigert (1921-28), William J. Cooper (1929-33), George F. Zook (1933-34), and the present Commissioner, John W. Studebaker (1934-). R.J.M.

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UNITED STATES CONSTITUTION AND EDUCATION. The Constitution of the United States contains no direct mention of education, nor does it contain any reference to specific educational functions of the federal government. This omission is understandable in the light of conditions prevailing at the time of the framing of the Constitution. The original states were jealous of their individual prerogatives and rights, and certain of the leading original state delegations were strongly desirous of limiting the provisions of the Constitution to only those matters that

could be considered of primary necessity in binding the mutual interests of all the states.

The Constitution, as formulated, represented a difficult compromise in which matters of less concern to the group as a whole were considered best omitted, or reserved to the individual states by implication. Furthermore, education was considered for the most part a purely local matter in the experience of the delegates and few doubtless even envisioned its importance as of any national interest or concern at the time. As a matter of fact, education during that early period was not often considered a function of the state, for by common consent, except in New England, it remained for religious societies, private individuals, and parents to provide with the means they possessed such education as was felt necessary.

The tenth amendment to the Constitution made clear the reservation to the states of such powers as were not explicitly made the responsibility of the federal government in the Constitution. By implication, then, education has continued constitutionally as a function of each state to be exercised within its discretion.

Gradually, as the importance of education was envisioned by leaders of the times and in spite of rigorous opposition to the changing viewpoint, the early indifference toward it changed to one of increasing interest. Four of the original eleven states soon adopted constitutions including some provision for the establishment of schools; the other seven made no mention of the subject in their constitutions.

With the gradual change in the conception of the function of education in the middle 19th century, and as qualifications for voting were liberalized, more definite statements were written into state constitutions, which indicated its growing importance in the minds of the people. Practically every state constitution adopted or revised since 1865 has included a specific provision relative to the establishment of a system of public schools. A few contain direct prohibitions against the use of public funds for private or parochial schools.

While the Constitution of the United States makes no direct mention of education, the federal government has developed extensive relations to education, beginning with early grants of land for public school purposes and

for institutions of higher education in states formed from the public domain. More recently the government has made grants-in-aid for a variety of specific educational purposes. Many of its bureaus, offices, and departments, especially those recently created, have been given funds for conducting special programs of education. (See UNITED STATES OFFICE OF EDUCATION; FEDERAL AID TO EDUCATION.)

When such actions have been challenged as lacking federal constitutional support, its proponents have generally put forth the "general welfare" clause of the Constitution as supporting authority in lieu of direct constitutional authorization.

Thus, while the Constitution does not obligate the federal government definitely in the matter of public education, there appears to be a growing trend toward a recognition that the federal government has an obligation which it probably will assume increasingly.

R.J.M.

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UNITED STATES DEPARTMENT OF STATE, DIVISION OF CULTURAL RELATIONS—See CULTURAL RELATIONS, DIVISION OF.

UNITED STATES OFFICE OF EDUCATION. The United States Office of Education was created originally as a *Department of Education* by Act of Congress March 2, 1867; it was changed to the *Office of Education* in 1869; this, in turn, was renamed *Bureau of Education* under the Department of the Interior in 1870; and in 1929 was again called the *Office of Education*. Its original legal functions were limited primarily to educational fact-finding and fact-disseminating and to promoting the cause of education. From time to time numerous added

responsibilities have been assigned to the Office. When the Federal Security Agency was established in 1939, the Office of Education was transferred to that agency.

While there has been considerable sentiment among educators that the United States Office of Education should be given full status as a Department in the federal government with a cabinet secretary at its head, Congress seemingly has been reluctant to take such a step, which ostensibly might lead to ultimate interference by the federal government with the general policy of state and local control and management of public education. Nevertheless, the Office of Education has continued to play an increasingly effective role in educational leadership in the United States through its issuance of annual reports, circulars of information, surveys, and, more recently, bulletins and researches on a variety of timely and interesting educational subjects.

The Office is headed by a Commissioner of Education (See UNITED STATES COMMISSIONER OF EDUCATION) appointed by the President, by and with the advice and consent of the Senate. Its work is divided into administrative divisions covering the fields of Higher Education, American School Systems, Special Problems, Vocational Education and Vocational Rehabilitation (with an assistant commissioner in charge), Comparative Education, Statistical, Editorial, Library and Library Service.

Until February, 1942, the Office published *School Life* as its official journal. For the duration of World War II this was replaced by a modified biweekly publication entitled *Education for Victory*, which deals extensively with wartime activities and the schools.

The Office of Education has no administrative authority over state school systems but possesses certain administrative functions relative to the expenditure of funds appropriated by Congress for vocational education, for co-operation in the vocational rehabilitation of the physically handicapped, for colleges of agriculture and mechanical arts in the states and territories, and for certain wartime emergency training funds.

The Office, since 1926, has conducted five important national surveys: (1) Land grant colleges and universities, 1927-30; (2) Negro colleges and universities, 1927-28; (3) secondary education, 1929-32; (4) education of

teachers; and (5) school finance, 1931-32. The last survey was left incomplete by reason of the failure of Congress to appropriate further funds.

The most important of its continuing publications is *The Biennial Survey of Education* (q.v.), which is a comprehensive statistical and expository review of educational developments in the United States.

More recently, the Office has established services pertaining to Inter-American Educational Relations, the federal forum project (terminated June 30, 1941), public service training, an educational transcription service; has initiated the organization of the United States Office of Education Wartime Commission; and has developed other aids to various wartime programs affecting the schools.

The administrative organization of the Office consists of a Commissioner, an Assistant Commissioner, an Assistant Commissioner for Vocational Education, and an Assistant to the Commissioner. There are a number of consultants, each serving in a specified field, as well as a group of administrative assistants, bearing such varied titles as executive assistant, director, editor-in-chief, and chief clerk. Each of the divisions and services is headed by a chief—except the library of which a librarian is in charge. The library is among the foremost educational libraries in the United States. (See also VOCATIONAL DIVISION, U. S. OFFICE OF EDUCATION.) R.J.M.

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UNITED STATES TERRITORIES AND OUTLYING POSSESSIONS, EDUCATION IN. Education in the Territories and Outlying Possessions of the United States functions under a multiplicity of Federal and local controls. There is, it is true, a Division of Territories and Island Possessions in the Department of the Interior, but it can concern itself with only Alaska, Hawaii, Puerto Rico, and the Virgin Islands. Even in these four areas there are wide differences in the policy, financing, and scope of the educational machinery.

Alaska. Alaska, the first to be acquired, has two distinct educational systems. The Territorial system, for whites and "natives of mixed blood leading a civilized life," is legally controlled by the Alaska Legislature. It is administered by a Territorial Board of Education appointed by the Governor with the approval of the Legislature. The Commissioner of Education is, in turn, appointed by the Board of Education. For purposes of local administration there are two general types of schools—those within incorporated cities and those in unincorporated areas. The incorporated city school is jointly financed and administered by the municipality and the Territory, but all responsibility for the establishment, control, and financing of the rural and special schools rests with the Commissioner of Education.

By far the largest share of financial support of Territorial Schools is provided through biennial appropriations by the Territorial Legislature. This is supplemented by the proceeds from a five-dollar school tax levied annually on all able-bodied males between the ages of 21 and 50. A share of the receipts from the National Forest Reserves and the Alaska Game Commission also goes into the school fund. The Federal Government makes an indirect contribution in that 25 per cent of the Federal license monies collected outside the limits of incorporated towns is earmarked for education in the unincorporated areas. The incorporated cities are permitted to levy taxes for school pur-

poses within their own limits. The Territory refunds to each city a percentage of the expenditures incurred, the percentage being determined by the resident school enrollment.

These monies support a system for education through the secondary level. In actual practice, most of the rural schools cannot maintain a high school and the children are required to attend school until they have completed the highest grade in their neighborhood schools or until they have reached their sixteenth birthday.

In 1938 the Territorial schools in incorporated cities enrolled 4,286 children, 26.9 per cent of whom were in secondary school. In the schools outside corporate cities, 2,142 were enrolled during the same year, with only 9.8 per cent in secondary school.

The University of Alaska is supported about equally by the Federal and Territorial Governments. Its chief emphasis is upon scientific and professional training. On the 216 regular students enrolled in 1938-39 less than 10 per cent were in liberal arts. The University indeed reflects the pioneering nature and practical interest of life in Alaska.

Accompanying, but not paralleling, the Territorial School system is the Federal school system for the education of the racially indigenous children. Responsibility rests with the United States Secretary of the Interior. The administrative machinery is centered in the Alaska Section of the Education Division of the Office of Indian Affairs in Washington.

The Federal school system is more comprehensive than is the usual school system, including economic, medical, and social welfare programs for the natives. It is completely financed by Congressional appropriations.

In 1938 the system comprised 98 day schools on the elementary level and two vocational secondary schools. The combined native enrollment in that year was 4,660, of whom 306 were in the two vocational schools.

Accurate ratios between the number of children in school and the school-age population are impossible for the year 1938. The 1930 census sets the ratio at 70.5 for the white population and 48.0 for the native. Estimates of white and native enrollments for 1938 show increases of 26 and 27 per cent, respectively, over the 1930 ratios. The

percentage increase for the total population for the same period was approximately 18. There is no specific information to show how the total increase was divided, but it is obvious that school attendance in both groups is showing improvement.

Hawaii. The most formidable problem of education in Hawaii has been to create out of so many different racial and national elements one American community sharing in a common language and pattern of life. In 1938 the total population of 411,485 was divided into 15.2 per cent Hawaiian, 26.0 per cent Caucasian, 6.9 per cent Chinese, 37.3 per cent Japanese, 12.8 per cent Filipino, and a scattering of 1.8 per cent Korean and others. Within these groupings there are also differences—the Caucasian group, for instance, is composed of Portuguese, Puerto Ricans, Spanish, and continental Americans.

Despite the heterogeneity of the population, education in Hawaii is excellent. It follows a single ladder system from the elementary through the university level. Opportunities are equally available to all races, and children in rural communities suffer no discrimination. There are special vocational classes, and a school for the deaf and blind.

Educational administration is highly centralized. In general, it rests upon enactments by the Territorial Legislature and upon regulations of the Department of Public Instruction. Authority over the Department of Public Instruction is exercised by a body of eight Commissioners, one of whom is the Superintendent of Public Instruction. All are appointed by the Governor, who is himself a Presidential appointee. However, the Territorial Senate must concur in the eight appointments.

One exception to this general centralization is the existence of County Boards of Supervisors, elected by the people. They have responsibility over school funds set aside for new buildings, equipment, repairs, and maintenance.

The Territorial Legislature votes appropriations for teachers' salaries, administrative expenditures, and for the purchase of equipment. Money raised by property taxation in the counties is used for the purchase of sites, and the erection and maintenance of school buildings.

The 1938 public school enrollment of 90,-

880, when arranged by ethnic groups, shows differences in utilization of school facilities. The Hawaiians and Puerto Ricans were well represented in the elementary school, but their representation in the intermediate and high schools was below their relative place in the population. The continental Caucasian group was not proportionately represented on any level. This is due to the large numbers of that group who attend private schools. The proportion of Chinese children in high school was double that of their race in the total population, and the Japanese made up about half the elementary school population and a decided majority in the intermediate and high schools.

Private schools occupy an important place in Hawaii. In 1938 the 110 private schools represented 36.9 per cent of all schools. About 40 per cent of all continental Caucasians in school were enrolled in private schools.

The Oriental Language schools, offering instruction in the Chinese, Korean, and Japanese languages and cultures, are conducted after school hours. There has been some decline in enrollment in recent years, although the Japanese group has maintained a very high percentage of attendance.

Puerto Rico. The most serious problem confronting Puerto Rico is that of a constantly increasing population pressure against its limited resources. This is reflected educationally in overcrowded classes, ill-paid teachers, and a large proportion of school-age population for whom there is no room in school. The 1935 Census reports 571,072 children between the ages of five and eighteen, of whom only 257,845 were in school.

Puerto Rico is largely rural, and school enrollment in the rural areas is much lower than that in the cities. In 1935 the urban schools enrolled 73.9 per cent of all residents between the ages of seven and thirteen while the rural areas enrolled but 56.6 per cent of their residents of the same age. The Commissioner of Education in 1938 estimated that in that year two out of every three persons between the ages of five and eighteen in the rural areas were out of school.

Education in Puerto Rico faces another serious problem—that of language. Bilingualism is the stated policy of the Department of Education, but when more children are out

of school than are in school, and when those who are in school stay only a few years, it is not hard to understand that only 22.9 per cent of the population 10 years of age and over could speak English in 1935.

The people of Puerto Rico have small share in controlling their educational system. The Commissioner of Education, the "key to the entire educational situation," is responsible primarily to the President of the United States and derives his power from the Organic Act.

The Insular Legislature exercises some direction by its promulgation of the school law and by voting the school budget, but the Commissioner is responsible for policy, all courses of study, and the selection of teachers; he also approves all disbursements. In general, the acquisition and maintenance of buildings and equipment are left to the municipalities, and to the municipal School Treasurer-Directors, appointed by the municipal assemblies.

School revenue is derived from three sources—insular, municipal, and Federal grants. The last includes the usual vocational aid plus funds allotted to the Puerto Rico Reconstruction Administration, used mainly for building construction. Funds for the insular appropriations are from customs, Internal Revenue receipts, excise and income taxes. The income of the municipalities is from property taxation.

A review of school enrollment figures reveals an uphill struggle to create facilities. Even though the number of children in school constantly increases, the number out of school increases even faster. In the 15-year period between 1920 and 1935, facilities were expanded to take care of an increase of about 60,000 children. However, in the same period, the number out of school jumped from 240,000 to over 313,000. The distribution of the public school enrollment figures for 1938 seems just as discouraging. Out of a total of 262,250 enrolled, 12,329 (none of whom were in the rural areas) were in grades 9-12. By far the majority (183,806) were enrolled in grades 1-4, and of these, 115,427 were in rural schools.

A brighter side of the rural school problem is shown by the growth of the second-unit rural schools (grades 4-8). These schools, developed in rural areas, serve not only the

children, but the social, economic, and cultural needs of the whole community. The curriculum is equally divided between academic and vocational work of a sort fitted to the needs of the community in which the school functions. In 1938, the second-unit schools reached 11,164 boys and girls in the rural areas.

Guam. The island of Guam, acquired by the United States as a result of the Spanish-American War, has been little known and infrequently visited. The 1938 population consisted of 20,911 natives, and 1,434 others, officers and enlisted men of the United States Navy. The natives are largely Chamorros, a racial mixture of ancient Chamorro with Spanish, Mexican, Anglo-Saxon, and Oriental strains. The culture of the island is predominantly Spanish.

The public school system, established in 1900, used English as the basal language. There is no Chamorro literature, so English was readily accepted.

The President of the United States has always appointed a Navy officer to act as Governor of the island, and to administer all civilian affairs. As Governor, he controls all educational funds, formulates policies, and made all appointments. The Chaplain of the Naval establishment is charged with the administrative functions of public education, aided by a native Superintendent of Schools.

Revenues derived from local taxation by the Naval Government are the chief support of public education. These have been supplemented by Federal funds. In 1937-38, the total cost of education was \$71,192.84, which included \$14,999.58 in Federal money.

Children between the ages of 7 and 12 are required to attend school. In 1938 there were 4,066 children in public school. Illiteracy was very low, being confined almost entirely to those over 21 years of age.

Instruction through the sixth grade is available to all, but entrance to the junior high school is limited to 70 pupils on a competitive basis. The senior high school is a teacher-training institution, and enrollment in the tenth grade is limited to about 25.

There are three schools not financed by the Department of Education. The Guam Institute, supported by tuition fees, enrolled 201 pupils in 1938. The E. S. Root Agricultural School, conducted by the Department of

Agriculture, enrolls about 30 boys annually. The American School is organized to provide for the education of children of the naval personnel. Teachers are selected from among the wives and daughters of that personnel. It is supported by tuition, taxes levied on certain articles in the Naval store, contributions, and a small allotment from the Navy Department. Sixty-three pupils were enrolled in 1937.

American Samoa. Acquisition of American Samoa came about as a result of rivalry among Great Britain, Germany, and the United States in the mid-Pacific. A Joint Commission of the three powers agreed upon a partition in 1899. Great Britain received the Longa Islands, Savage Island, and part of the Solomons. Western Samoa was granted to Germany, and Eastern Samoa to the United States.

American Samoa is a naval station and the Commandant has always been commissioned as Governor by the President. The Navy Chaplain heads the Department of Education, aided by a seven-man Board of Education, appointed by the Governor. The Superintendent of Education is the professional head of the school system, and a native Supervising Principal completes the administrative organization. With certain exceptions, the teachers are natives.

Public schools are supported by the Naval Government treasury. A special school tax is voted annually at the *fono* (the traditional Samoan meeting), and is collected along with the poll tax from all males 18 years of age and over. Because of the family and communal system of land tenure, there is no land taxation.

The Governor reported a population of 12,241 in 1938, of whom 278 were white. This represents a population increase of 21.7 per cent over the 1930 figure, a percentage practically duplicated by the growth in public school enrollment for the same period—from 2,044 to 2,510.

Public schooling is available through the ninth grade. Non-public schools in Samoa occupy a very important place in the educational scene. There are six parochial schools, which, in 1938, enrolled about 480 pupils. These schools have a long missionary history, and two of them offer advanced training in religious work. The rest are elementary.

Another private school, the Feleti School, is financed by the Barstow Foundation. Its aim is to prepare "young men of Samoa in both Samoan and American ways of life so as to prepare them for leadership of their people." In 1938 it had an enrollment of 30 boys, appointed by the Governor. It is a boarding school, with a course of three years following the ninth grade.

There are pastors' schools in all villages, which are open and free to all. Classes are held after school in the Samoan language, and their whole atmosphere is in the Samoan tradition. It is due to these pastors' schools that the percentage of illiteracy (in Samoan, not English) is the lowest of any in all the Territories and Outlying Possessions.

Canal Zone. All activities in the Canal Zone center around the operation and maintenance of the Panama Canal. For this reason all activities are government controlled and financed. The Governor is appointed by the President and is responsible to the Secretary of War. An Executive Secretary is responsible to the Governor for police, fire, school, and civil affairs. A professional educator, appointed by the Governor, is charged specifically with the administration of the school system. Here the problem of local financing does not exist. There are no taxes and no school debt service; practically all funds come from Congressional appropriations.

Schooling is furnished free to all children whose parents reside in the Canal Zone, or whose parents reside outside the Zone, but are citizens of the United States and employed by the Federal Government. Tuition is charged in the Junior College. Thus, public education is free to negro and white, citizen and alien, provided the above conditions are met. Most of the Negro residents of the Zone are aliens, and no machinery exists by which they may become citizens.

In education, as in other Zone activities, there is a sharp line of demarcation between Negroes and whites. They attend separate schools and there are differing facilities. Instruction for whites is available from the elementary through the junior college level. Education for Negroes extends through the ninth grade. Because of this, although there are between two and three Negro children to every white child in the Zone, school enroll-

ment is about equally divided between them. The 1938 enrollment figures were 3,249 white (305 in the Junior College), and 3,099 Negro children.

Virgin Islands. Serious economic conditions and a decreasing population have influenced the educational program in the Virgin Islands. During the last few years, however, both factors have shown an improvement and the schools have prospered accordingly. Illiteracy is practically confined to the group over 21 years of age, and with few exceptions, everyone speaks English.

The Virgin Islands have a civil government, with the Governor appointed by the President. The autonomy of the two municipalities has been maintained since the days of Danish control, and both have their Municipal Councils, which, when called in joint session, constitute the Legislative Assembly.

Thus, public education is mainly a municipal function. There are two separate school systems—one for the Municipality of St. Thomas and St. John, and the other for the Municipality of St. Croix. Each has its own superintendent, appointed by the Secretary of the Interior; and each has its own board of education. Appropriations for education are included in the separate budgets. These, however, have been, and are insufficient. Federal appropriations are made to cover deficits, and some Federal funds have been used for school construction and repairs.

Both municipalities maintain schools on the elementary, junior high, and senior high school levels. However, a relatively small proportion of the school population enjoys the privileges of senior high school. In 1938, out of a total enrollment of 3,374 in both municipalities, only 5.3 per cent were in the senior high school.

Private schools hold an important place in the Virgin Islands. They are denominational, and in 1938 enrolled 1,377 pupils, or 29 per cent of the total school population.

The limited resources and population of the islands make the maintenance of a college impossible. Some students do attend the University of Puerto Rico, and a few municipal scholarships are available for students to study in the States.

C.F.R.

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UNIVERSE—See **SAMPLING**.

UNIVERSITY EDUCATION. In the United States the university is typically an institution of higher education comprising an undergraduate college of liberal arts and sciences, professional units or colleges, and a graduate division that offers programs beyond the baccalaureate and the first professional degrees. However, some schools traditionally have borne the label of university without fulfilling this definition, and in some instances offer little instruction beyond the scope of a liberal arts college. On the other hand, certain schools without the designation of "university" are offering graduate or advanced professional programs of instruction. There are more than two hundred chartered American "universities," although not all qualify under the definition given above.

The diverse functions and complex structure of the modern university are indicated by its varied subdivisions. In addition to the undergraduate college of liberal arts and the graduate school, the university may include one or more of the following professional schools, colleges, or divisions: agriculture, architecture, business administration, dentistry, education, engineering, forestry, home economics, journalism, law, library, medicine, music, nursing, pharmacy, social work, speech, theology, and veterinary medicine.

Colleges and universities are controlled by boards of trustees or directors, in some instances self-perpetuating, but more commonly elected or appointed. Board membership for church-related colleges may be determined by relationship to some religious body. For state universities the board may be elected by the voters or appointed by the governor. In recent years certain states have placed all state institutions of higher education under one controlling board, creating in effect a state system of higher education. The trustees elect a president, appoint faculty members on recommendation of the president, formulate

governing regulations and policies, and supervise the funds and property of the institution.

Entrance to the undergraduate college and to some professional divisions of the university is based primarily on graduation from a recognized secondary school, while certain other professional colleges require for admission a period of undergraduate preparation. Entrance to some colleges of medicine and law is based on four years of undergraduate college work. The length of the curriculum of a professional school or college, like that of the liberal arts college (*q.v.*), is usually four years.

At least six major developments have characterized the innovations of higher education during recent years, especially liberal-arts education:

1. Deviations from the four-year homogeneous unit to permit graduation in less than four years.

2. Reorganization of content to emphasize fields of learning.

3. Adoption or increased development of honors work, the tutorial method, and general examinations. Honors work is intended as a stimulus to the superior students of the junior and senior years, through individualized or tutorial instruction, usually with specialization in a particular department culminating in a comprehensive examination at the end of the college program.

4. Adjustment of the curriculum to the individual student.

5. Application of the principle of learning through experience.

6. Use of achievement tests and substitutes for course credits. (See **GRADUATE EDUCATION**; **HIGHER EDUCATION**; **MUNICIPAL COLLEGES AND UNIVERSITIES**; **STATE COLLEGES AND UNIVERSITIES**; and such articles on Professional Education as **LEGAL EDUCATION** and **MEDICAL EDUCATION**.)

C.V.G.

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UNIVERSITY EXTENSION. The expression *university extension* is used to designate a variety of ways of extending the educational services of higher institutions to the general population, including correspondence courses and class instruction on or off the campus for persons not registered as resident students of the institution. State universities and institutions in large metropolitan areas have been particularly active in the establishment of off-campus centers of instruction. The services of university extension are a part of the much larger field of instruction known as adult education (q.v.).

Extension courses with academic credit are similar in form and content to those offered for resident students. The relatively informal educational activities of university extension centers reach both adult and youth groups, and deal with a wide range of problems (for example, agriculture, home economics, recreation, health, civic affairs, and industry) through lectures, classes, instruction by mail, library loans, visual aids, school contests, conferences, institutes, demonstrations, short courses, forums, advisory services, publications, and radio. Extension classes are usually taught by members of the resident faculty, although specialists from the professions, trades, and industry are employed for particular types of instruction. A few universities have a special faculty group that devotes full time to extension duties. C.V.G.

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UNIVERSITY LIBRARIES — See LIBRARIES, UNIVERSITY AND RESEARCH.

URUGUAY, EDUCATION IN. Uruguay, about equal in area to North Dakota,

is the smallest of the South American countries. Located in a temperate climate at the mouth of the *Rio de la Plata*, it is mostly made up of flat, green pasture land, and is open to the east. Ninety-five per cent of its 2,300,000 inhabitants are white, the majority being of Latin stock. Thirty per cent live in the cities, mostly in Montevideo. Industry and cattle raising are the chief economic enterprises. Only 5 per cent of the arable land is cultivated. Besides this, there are some mining and forestry, and a considerable income accrues from the beaches which attract neighbors from Argentina in great numbers. After the *Independencia* the security of Uruguay was threatened constantly by the ambitions of its two powerful neighbors, Argentina and Brazil, and by its own bloody inner dissensions between conservatives and radicals (*Blancos* and *Colorados*). But in the last forty years the country has settled down peacefully. Credit for this goes largely to the enlightened activities of President José Battle y Ordóñez (1903) and to the *Colorado* government that has been in power since that time. Uruguay is today a center of democracy, the staunchest supporter of Pan-American solidarity, and has the most progressive economic and social legislation of the South American continent. The paternalistic state is itself owner of basic enterprises and guarantees the social security of all its citizens.

Such conditions could foster a democratic and progressive system of education. The liberator of Uruguay, the *Gaúcho* Artigas, founded the first secular school as early as 1811. The next step arose, as in other South American countries, from the educational activities of James Thompson, the Scotchman, who with the support of the authorities (at that time the Portuguese from Brazil) introduced the Lancastrian system in 1821. The common school came into existence under the influence of Horace Mann. It was created by his ardent disciple, the *Horacio Mann* Uruguayo, José Pedro Varela, and found expression in the Education Act of 1877. It brought about centralization of educational administration, inspection of the private schools, free and compulsory education, and drastic limitation of religious education in the public schools. Religious education in public schools disappeared completely when the constitution of 1917 pronounced the separation

UTILIZATION OF SCHOOL BUILDINGS

tion of state and church. Owing to the necessity of equalizing educational opportunity in the urban and rural areas, educational administration is today becoming still more centralized under different democratically organized councils for the different branches of education. Private, state-inspected education prevails only at the kindergarten level, in twelve out of a total of thirteen kindergartens. Only 12 per cent of the elementary and about 15 per cent of the secondary school population attend private institutions. In spite of very progressive legislation, lack of schools accounts for the fact that only 9 per cent of the population can attend, and that the problem of illiteracy (estimated from 20 to 35 per cent of the adult population) has not yet been mastered. Public and private agencies are making outstanding efforts in this direction.

The compulsory school age is from six to fourteen in elementary schools and extends for three more years (nine hours a week) in a vocational continuation school. The two last years of the elementary school have a vocational bias. Since 1917 part-time vocational schools for all the existing trades have been established for boys and girls. There is now also one full-time vocational school with 240 students who enter at the age of twelve after six years of primary school. All the other postprimary or secondary schools (about 30 with about 11,000 students), which were formerly under the authority of the university, follow almost completely the European pattern. The twelve-year-olds go through the same rigid academic course for five years. The sixth year has six divisions. Of these, five are professional and lead to the respective university schools; the sixth has a commercial bias. But all these six groups have a common academic core of fourteen hours weekly, i.e., half of their total schedule.

The great majority of the teachers are women. They are trained in two normal schools in Montevideo and three in the provinces. These have a general curriculum of four and a professional curriculum of three years, with practice teaching in the last two years. Special training for secondary and special teachers is planned, but does not yet exist.

The university in Montevideo was founded in 1847 in the positivist spirit of the time and still lacks a philosophical faculty. It enjoys self-government, with the faculty councils elected not only by and from the professors but also by and from the students.

This progressive country has followed progressive methods throughout the school system since it instituted its new educational program in 1928. In this respect it is indebted to its leading educator, Vaz Ferreira, and to three private experimental schools. Two originated in 1925 under the influence of a visitor from Colombia, A. Nieto Caballero. Like his *Gimnasio Moderno* in Bogota, they adopted the methods of Decroly. Sabas Olaizola directs the best known of them at Las Piedras.

If we add that the social and health services connected with the school are expanding from year to year (meals for the needy, vacation colonies, etc.), it is realized that Uruguay must be ranked next to Argentina and Chile on the scale of educational achievement among the South American countries.

F.K.

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UTILIZATION OF SCHOOL BUILDINGS—See BUILDINGS, SCHOOL.

V

V—See VARIATION, COEFFICIENT OF.

VACATION BIBLE SCHOOL. The Vacation Bible School plan is used by many churches to provide religious education and other worthwhile activities during the summer vacation period for children of from five to fourteen years of age. The usual schedule of the school is a two- to three-hour session, five days a week, for a period of from three to six weeks during July and August.

Although religious instruction forms a part of the program of the Bible school, games, dramatics, and arts-and-crafts activities account for most of the time spent.

The school is conducted frequently under inter-church auspices, resulting in a curriculum less denominational in character than that of the parish church school. W.V.N.

VALIDITY, TEST. The *validity* of a test is determined by the extent to which it measures what it purports to measure. This, if a test is supposed to measure ability in history, the score obtained by the pupil should be an indication of his knowledge of history, not of his ability to read.

Several methods are commonly used in validating a test. According to one method, the content of local and state courses of study and textbooks in the field is analyzed and the relative frequency of occurrence of topics or items determined. The test can then be designed to include those items which are given most weight in the materials analyzed. The major weakness in using this method of content validation lies in the fact that present practice, even though it may be faulty, determines the materials included on the test. Moreover, although a test may be valid in so far as curriculum practice for the country as a whole is concerned, it may be lacking wholly in validity for a school that emphasizes entirely different materials.

A test also may be validated by using statistical methods. Techniques commonly employed involve correlating the scores on the

test with some criterion measure, such as school marks, other tests in the field, or ratings by experts. Thus, a psychologist who has devised a group test for measuring intelligence may correlate the results on his test with the scores which the same examinees receive on the Stanford Revision of the Binet-Simon tests; or a test constructor who has prepared a standardized test for measuring a trait such as leadership may compare students' scores on his test with the ratings given the same students by their teachers and by psychologists. Underlying the use of such procedures for establishing the validity of a test is the assumption that the criterion measures are themselves valid. If, for example, the ratings of leadership as given by teachers and psychologists are not valid, any test which has a high correlation with these ratings is also likely not to be valid. J.J.

VANDALISM. The term *vandalism* is used to describe the ruthless destruction or defacement of property. Most vandalism occurs in connection with public property, such as parks, playgrounds, recreation centers, and school equipment and buildings. Examples of such depredations include smashing windows and stripping bark from trees and shrubs. School offenses usually comprise writing on or carving desks, drawing pictures or writing words of an obscene nature in toilets or on buildings, cutting pages and illustrations from library books and magazines, or defacing buildings or monuments belonging to rival schools.

Most of this destructive activity is said to be committed by boys between the ages of 15 and 21. It appears, therefore, that one basic cause of this behavior is the desire for adventure, coupled with the gang spirit so characteristic of adolescence. In many instances no wholesome outlet for natural activity is provided and vandalism becomes the major means of "having fun." In a few cases hatred of school or of certain individuals may be the motivating factor.

VARIABILITY

In coping with this problem, it is essential that a sense of property rights and of responsibility be developed in early childhood. The feeling should be created that public property belongs to all of us, and, therefore, everyone is responsible for its protection and care. The guidance of gang activities into acceptable channels through providing supervised recreation, the organization of high school students into protective groups, and community efforts to afford opportunities for legitimate adventure (e.g., municipally-supervised Hallowe'en carnivals) should aid greatly in the reduction of vandalism. If teachers would place less emphasis upon elaborate note books, the temptation to mutilate encyclopedias and books might be lessened. The creation of more wholesome sex attitudes and better supervision of toilets might prevent some of the obscene defacement referred to above.

R.V.M.

VARIABILITY. Since the individual items in an array of measures (such as the scores made by a class on an arithmetic test) usually differ from one another, it is desirable to have some measure of the extent of the scatter. The degree of homogeneity or heterogeneity in a frequency distribution is variously referred to as *dispersion*, *variability*, *deviation*, *spread*, and *scatter*.

Range. The *range*, one of the simplest but least adequate of all measures used to express quantitatively the variability of a distribution of scores, is the difference between the highest and the lowest scores. Since it is dependent only upon the two extreme individuals in the group and since it tells us nothing of the spread of the scores between these two extremes, the range is not a very meaningful measure, although it is easily understood by the layman. Thus, all people know what is meant when we say that the teachers' salaries in a given school system range from \$1,200 to \$3,700 a year.

Semi-interquartile range. (Also called *quartile deviation* or *Q*). The semi-interquartile range is one-half the distance between the 75th and the 25th percentiles. Like all other measures based upon percentiles, the semi-interquartile range does not take into consideration the value of each individual score within the distribution. Two distributions may show the same semi-interquartile range, and yet the

outlying scores in one distribution may be far more extreme than in the other.

Average deviation. The average deviation is the arithmetic mean of the differences between all scores and the central tendency (usually the mean), disregarding algebraic signs. The average deviation is superior to the range and the semi-interquartile range because all the items in the distribution help determine the size of the average deviation. Its interpretation is similar to that of the standard deviation.

Standard deviation. The standard deviation (σ) is a measure of variability employed extensively in technical statistics. The standard deviation is the square root of the mean of the squares of the deviations of the variates from the mean of the array. In the computation of the standard deviation, the distribution of all scores affects the size of the standard deviation, but the formula gives increasing weight to scores as they vary more and more from the mean of the distribution. The formula for computing standard deviation and the steps to be followed in making the computations are included in all standard textbooks on educational statistics.

The standard deviation computed from a small sample tends to be a little smaller in numerical value than that computed from a larger sample drawn from the same population; and it is at its maximum when taken from the whole number of variates which constitute the universe from which the samples are drawn. This last is called the "population value". In most statistical practice this "true" or "population" value cannot be computed because the number of variates in the universe is infinite and their mean is unknown. It can be inferred, however, by using a modification of the usual formula for computing the standard deviation.

It is a long-standing practice to designate the standard deviation by the lower-case Greek letter sigma, and to represent the corresponding "true" value by the sigma with a tilde over it ($\bar{\sigma}$).

In the opinion of the present writer, the standard deviation is a very awkward *descriptive* statistic for variability. It comes very naturally and importantly into theoretical statistics, and into the calculation of correlation coefficients and measures of reliability, because it is a by-product from fitting

by the principle of least squares, and from these uses it has come to be employed very extensively also as a descriptive statistic to express the variability of a set of scores. But for this purpose the *average deviation* would serve much better, especially when talking to laymen, because it has a more straightforward meaning and is only a little less reliable than the standard deviation. However, people who work much with technical statistics soon come to attach rather vivid interpretations to standard deviations: they infer, for example, that if the mean of the reading ages of a class of pupils is 9.4 and the standard deviation is 1.4, about $\frac{2}{3}$ of the pupils (68.27 per cent of them if the distribution is normal) will have reading ages somewhere between 9.4 ± 1.4 , (or 10.8) and $9.4 - 1.4$ (or 8.0); a little over 95 per cent will probably have reading ages between 12.2 and 6.6 (which is $\pm 2\sigma$'s, while nearly all of them (99.7 per cent) may be expected to have reading ages between 13.6 and 5.2, which is between the mean and plus or minus three standard deviations. Of course, similar interpretations could be made in terms of the average deviation; but statistical workers are so fully committed to the standard deviation, even as a descriptive statistic, that there is little present prospect of change.

Standard deviation is used also to describe the extent of variation in statistics due to sampling fluctuation, though here the term *standard error* is most often used instead of *standard deviation*. Formulas have been derived for inferring the standard error resulting from fluctuation of sampling in the case of nearly all the statistics we know how to compute. (See RELIABILITY.)

The following distribution of scores on Part II of the *Otis Classification Test* for 88 pupils in the third grade allows comparison of the several measures of dispersion.

score	f
30-34	3
25-29	8
20-24	18
15-19	30
10-14	17
5-9	10
0-4	2

Computed according to the definitions above and the usual formulas, the standard deviation of this array of scores is 6.57, the average deviation is 4.89, and the semi-interquartile range (Q) is 4.5, while the range

(from the lower border of the first interval to the upper border of the last) is 35. The reader should observe the relative magnitudes of these variability measures. In a perfectly normal distribution A. D. is .7979 times as large as the standard deviation, Q is .6745 times the standard deviation, and A. D. equals 1.1830Q. (See also VARIATION, COEFFICIENT OF.) C.C.P.

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VARIABLE ERROR. A *variable error*, or *chance error*, results when obtained scores for individual pupils may equally well be above or below the theoretically true values. Variable errors result from the operation of such environmental and psychological factors as different testing conditions, different degrees of pupil interest and attention, and different types of pupil attitudes toward the test and examiner. The direction of variable errors (whether an individual score is too high or too low) can seldom be determined, but if the number of students being tested is sufficiently great the effect of variable errors on the average for the group is usually negligible. (See CONSTANT ERROR.) J.R.G.

VARIATION, COEFFICIENT OF. A measure of *relative* variability as distinguished from *absolute* variability. If we ask, "Which group is more variable in height, new-born boys or twelve-year old boys?" the answer would depend upon whether we are thinking of amount of variability as measured by the standard deviation (or average deviation, or semi-interquartile range) of each group, or whether we are thinking in terms of variability *for their size*. The twelve-year-olds have greater possibilities of variability because of their greater average height. In comparing the two groups on a common basis we would take into consideration their mean height. The coefficient of variability is computed by the formula $100 \text{ S.D.}/M$, or one hundred times the standard deviation divided by the mean. The symbol is V . V therefore tells us what per

cent the standard deviation is of the mean. One group may be absolutely more variable than another yet, relatively to the mean, less variable. *V* has limited usefulness in that the measuring scales must possess the same unit and the measurements must be in reference to an absolute zero point. This disqualifies most test scores for the purpose of computing *V*. (See VARIABILITY.) J.P.G.

VENEZUELA, EDUCATION IN. Venezuela has a territory as large as Germany, England, Belgium, and Holland combined. In the west are the high Andes and in the east the wide plains of the Orinoco. This large country is only sparsely settled by a population of about 3,500,000 people. The great majority (about 80 per cent) is *mestizo*. Health conditions, owing to climate and undernourishment, are miserable, but Venezuela, which has been exploited by the few, is rich in resources. It is the third largest producer of oil in the world, and until World War II was without any public debt. The flood of foreign currency connected with the oil business made prices soar, and this factor added to the scarcity of homegrown food increased the abject poverty of the masses. Only since 1937 has the government made the attempt to extend agriculture and cattle raising and to improve the working conditions. Until 1936 this birthland of the great liberator Bolívar was in the hands of successive ruthless dictators until finally, in 1909, it became the prey of the most cruel of all, Juan Vicente Gomez. Only after his death in 1935 could Venezuela start its history as a modern nation. Most of the credit for the great progress the country has made since 1935 goes to the successor of Gomez, Lopez Contreras, and after 1941 to President Medina, who continued the work initiated by Lopez.

Under such conditions as have existed in Venezuela in the past, education could hardly develop. Although Lancaster had introduced his system there in 1820 and although free and compulsory education was decreed in 1870 by the dictator Guzman Blanco, the continuous civil wars and finally the rule of Gomez prevented any progress. The new government understood clearly that building democracy in such a backward and exploited country was a work of education. But there was at that time hardly any budget—2,500,000 inflated *bolivares* under Gomez—; there

was neither efficient administration nor adequate buildings; there were only 2,161 primary schools, attended by 19.9 per cent of the 689,288 school-age children; and few of the 1,900 teachers were trained for their work.

Today 22,000,000 gold *bolivares* are spent by the centralized administration, the Ministry of Education in Caracas. The ministry recognizes that the needs of the mostly rural population—the 90 per cent illiterate adults, as well as the children—have to be met first. To obtain quick results a special extension division has been created in the Ministry of Education, which uses the modern means of mass education: motion pictures, radio, and correspondence courses. This activity is partly on the elementary level, and partly aims at the rehabilitation of teachers in service. Meanwhile a deeper basis also has been established. The following three model institutions promote rural education: (1) The rural school, *Tamanaco*, where stress is not on the 3 R's but primarily on the skills which will enable the boys and girls to reconstruct their rural environment. Land and animals, implements, and laboratories are provided, and the pupils learn by doing. (2) The rural normal school, *El Macaro*, whose course is three years. The first year teaches the subject matter to the sixth grade; the second, rural techniques; and the third gives training in education. (3) The Central Rural Mission. The missionaries are educated at *El Macaro*. They are teachers in service. It is their duty to work as rural teachers of the new type in districts which have not been reached by education, to help liquidate illiteracy, to disseminate health information, and to render health service. The same spirit animates three great educational ventures which already extend beyond the described immediate needs: (1) The model school, patterned after Lincoln School of Teachers College, opened in Caracas in 1939, which is attended by 1,300 children and includes all levels from kindergarten to high school. All the rooms necessary in a modern school and all the appliances (for example, a radio in every class) are provided. All the activities, from the care of animals to the theatre, the modern dance, and the printing of a newspaper, are included. The school's first director was Sabas Olaizola, the well known Uruguayan educator. Valerio Ostos, a young Uruguayan, is now in charge of the school, whose staff

also includes some American teachers. (2) The *Institut Pedagógico*, located in an imposing building with air-conditioned rooms, athletic field, etc. Grade teachers as well as high school teachers are trained here in three-year courses. A complete secondary school for practice teaching is on the premises. (3) The *Colonia de Vacaciones of Catia la Mar*. Rotating groups of 600 boys and girls each are sent there for a fortnight from Caracas to learn and to enjoy healthy living.

The secondary schools still follow the academic European pattern. They have a first four-year cycle of required subjects and a second two-year cycle which has three university-preparatory divisions: philosophy and letters, physical sciences and mathematics, and biological sciences. The creation of a technical council in the Ministry of Education seems to indicate that with the growth of industry more attention will be given to post-primary, nonacademic education. The Universities of Caracas and Merida have not yet been reformed.

Progress during the last few years has been extraordinary. There are three times as many schools and four times as many teachers as in 1935. Moreover, the central importance of modern democratic education has found recognition in the very progressive Education Act of 1941.

F.K.

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VERBAL ILLUSTRATIONS. Of all the words in the teacher's vocabulary, possibly the two most important ones are for *example*. . . . They take such an abstract statement as ". . . the judiciary interprets the laws" which the high school student repeats almost like a mystic formula because it adds percentage points to his examination mark and translate it into a point of view which the adolescent recognizes as a part of the foundation of our way of living. The effective use of illustrations, and they may be verbal as well as visual, makes clear what would otherwise be vague, and makes vivid and forceful what would otherwise be prosaic.

So much attention has been given to the use of visual and auditory aids to learning

(See AUDIO VISUAL AIDS, AUDITORY AIDS, MOTION PICTURES IN EDUCATION, REALIA, and RADIO EDUCATION.) that too little thought is given to the contribution which such other types of illustrations as dramatization and verbal illustrations can make to the learning process. By acting out the situation, the teacher can demonstrate the distinction between *saunter* and *walk* more clearly, more vividly, and more quickly than he can explain the distinction by words alone. Similarly, a well-chosen verbal illustration can make concrete and comprehensible so abstract a principle as the law of diminishing returns.

Although all teachers are aware of the usefulness of verbal illustrations, which need no mechanical equipment or elaborate preparations, few use them with maximum effectiveness. It is typical of educational thinking that there should be so many research studies dealing with the uses and values of motion pictures in education and so little research concerning the more widely used verbal illustration. As a result, the available published material relating to verbal illustrations reflects the influence of expert opinion rather than of objective investigations.

The suggestions which have been presented by those who have studied the use of verbal illustrations all indicate the desirability of having the teacher select and organize the verbal illustrations in advance of the class meeting. Though it is impossible to predict everything that will be said during a classroom discussion, the teacher should be able to anticipate the major concepts that will probably play a major part in the discussion. Some experienced teachers may be able to think of appropriate illustrations on the spur of the moment, but all teachers will probably be able to think of better illustrations if time and thought are given to the process of selection. This emphasis on the teacher's selection of illustrations need not imply that all illustrations should be given by the teacher. Illustrations which come from students help clarify their thinking and may reveal inadequacies of understanding or misinterpretation. Thus the social studies class which is studying the problems of mass production will see the problem more clearly if they are made familiar with several illustrations of mass production. The students themselves should be encouraged to suggest additional instances

VERTICAL ORGANIZATION OF SUPERVISION

of mass production with which they are familiar.

Since the purpose of the verbal illustration is to make a concept vivid and clear, it is obvious that the illustration must be on the pupil's comprehension level and within his range of experience. Illustrations of technological unemployment are best when they deal with occupations familiar to the student. Thus the explanation of the way in which the installation of automatic steel rolling machines reduced the need for steel workers may not be as meaningful to students living in a commercial city as would an illustration of the way in which the use of paint spraying machines reduced the number of painters needed. Children who think that only ignorant and selfish textile workers fought against the introduction of the power loom may understand this reaction better if they think in terms of local and contemporary parallels. It is, therefore, hard to find an illustration of any concept that has universal appeal and significance. To be most meaningful, the illustration must be planned for the specific group of students for whom it is intended.

Good verbal illustrations are usually concrete rather than abstract. The mythical purchases which Mr. A. makes from Mr. B. may not be as vital an illustration of economic principles as the purchases which these students make at the school bookstore. A realistic illustration, if possible a true instance, is usually more challenging than a hypothetical one. All bookkeeping teachers, for example, know how much more interest is aroused when the illustrative material is a page taken from the real ledger of a going concern instead of a reproduction of the hypothetical concerns usually described in textbooks. Similarly, a verbal illustration taken from a real business transaction is usually superior to an abstract illustration which applies to business generally.

Though the verbal illustration is a useful aid to learning, its value may be reduced if too much importance is attached to it. Verbal illustrations are means to ends, not ends in themselves. Obviously, no illustration should be so long or so involved that it takes the student's mind away from the major problem at hand. Similarly, the illustration may sometimes be so interesting that the students ignore the point it was intended to clarify.

Telling a story is an effective method of vesting the various school subjects with an air of reality by enriching them with verbal detail and meaningful illustrations. Thus the account of Pasteur's search for the factors that caused wine to turn sour adds to the students' interest in, and understanding of, the process of pasteurization. This does not mean that all teaching should be done by the story-telling method. As Horn points out in his *Methods of Instruction in the Social Studies*, the story-telling method as the principal device for teaching has been largely discredited, even in the elementary school. Oral instruction, including story-telling, is nevertheless a useful teaching procedure on all levels. It may be used to introduce a new topic, to illustrate a particular point, or to sum up a lesson.

It is well to keep in mind that, while the use of story-telling adds interest to almost any topic, it must be well done to be effective. The teacher who talks too slowly, fails to simplify his language to suit his audience, and who uses all the class time in his own oral presentation without allowing the pupil an opportunity to ask questions or to express his ideas, runs the risk of making his subject dull and monotonous. The effective teacher tells his story with enthusiasm, with a good sense of the dramatic, with appropriate gestures, and with a sense of proportion of time. Thus presented, good oral presentations give pupils experience at learning through listening, a skill much needed in these days of radio. The verbal presentation may also save time for the class, for the teacher can thus set the stage, clarify hazy ideas, and add significant detail. The results of most experimentation in oral learning versus the recitation and other methods indicate that the better pupils profit by extended oral presentation while the less able pupils neither like, nor learn much from lectures.

W.H.H. and T.M.R.

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VERTICAL ORGANIZATION OF SUPERVISION—See SUPERVISION OF INSTRUCTION.

VETERINARY EDUCATION. The standards of veterinary education in the United States have advanced greatly during the third and fourth decades of the twentieth century and especially in the period since 1930. These changes have followed the pattern of those that occurred in medical education somewhat earlier. When the U. S. entered the first World War there were about twenty-five veterinary schools, of which more than half were proprietary. By 1920 most of the proprietary schools found it impossible to meet advancing requirements of veterinary practice laws and were compelled to discontinue, leaving this educational field to tax supported and endowed institutions. In 1927 the last proprietary veterinary school closed its doors. Of the ten accredited schools now operating in the United States, nine are state supported and one is supported partly by endowment and partly by tax-raised funds.

The American Veterinary Medical Association and the U. S. Department of Agriculture are the two principal accrediting agencies for veterinary schools in this country.

Through its Committee on Education, the American Veterinary Medical Association collects data from the schools and periodically inspects their physical facilities and teaching methods. The ratings of the Association are accepted by the U. S. Army and by the licensing boards of many of the states. Some states, e.g., New York, do their own accrediting. The schools that are approved by the Association at present (1942) are as follows:

Alabama Polytechnic Institute, School of Veterinary Medicine, Auburn, Ala.; Colorado State College, Division of Veterinary Medicine, Fort Collins, Colo.; Cornell University, New York State Veterinary College, Ithaca, N. Y.; Iowa State College, Division of Veterinary Medicine, Ames, Iowa; Kansas State College, Division of Veterinary Medicine, Manhattan, Kansas; Ohio State University, College of Veterinary Medicine, Columbus, Ohio; Michigan State College, Division of Veterinary Medicine, East Lansing, Mich.; Pennsylvania, University of, School of Veterinary Medicine, Philadelphia, Pa.; Texas Agricultural and Mechanical College, Division of Veterinary Medicine, College Station, Texas; and Washington State College, Division of Veterinary Medicine, Pullman, Wash.

The U. S. Department of Agriculture, which

is the largest single employer of veterinarians in the country in its meat inspection, quarantine, and field inspecting divisions, promulgates regulations governing entrance to veterinary-inspector examinations given by the U. S. Civil Service Commission in which a list of approved schools is given. At present this list includes the active schools listed above, and others which have existed in the past but are no longer operating.

With one exception, all of the active schools on these approved lists require a minimum of one year of satisfactory college work for admission. The exception, the University of Pennsylvania, requires two years. All of the schools require four years' work for the professional degree; therefore every graduate now has at least five years of college work. The professional degree, granted to those who complete their courses successfully, is Doctor of Veterinary Medicine (D.V.M.).

All states now have licensing boards which conduct their own examinations and every practitioner must hold a license in the state in which he practices.

Until about 1930, admission to most veterinary schools was easily obtained by those who wished to enter the profession. This situation has changed radically in recent years and at present only a small percentage of those who wish to enter the profession are able to obtain admission to the approved schools. Admission is on a highly selective basis, scholarship, previous experience with animals, and personal qualities being considered in making the selections. Women are considered by most of the schools, but few are admitted at present.

The curricula of the approved veterinary schools differ in details but are basically alike. The pattern of instruction is like that of the medical schools, the first two years being devoted to the basic, preclinical subjects—*anatomy, histology, physiology, physiological chemistry, bacteriology, parasitology, pathology and material medica*—and the remainder of the course to the applied subjects—*medicine and therapeutics, surgery, obstetrics, and clinical practice*. The emphasis on subject matter differs somewhat from that in the curricula of medical schools. Parasitology, for example, is a much more important subject in veterinary medicine than it is in human medicine, and consequently is treated

much more thoroughly. Greater attention than in medical schools is given, also, to food hygiene, with particular reference to meat and milk. On the other hand the veterinary curriculum lacks instruction in psychiatry.

There is no period of internship in veterinary medicine as there is in human medicine. Accordingly an attempt is made to give students as much actual experience as possible in the diagnosis and treatment of diseases by medicinal and surgical means in their clinical work. Although practice laws do not require it, young graduates are encouraged to work at least one year with established practitioners before entering practice for themselves, and a considerable proportion of all graduates follow this course.

W.A.H.

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VIRGIN ISLANDS, EDUCATION IN

—See UNITED STATES TERRITORIES AND OUTLYING POSSESSIONS, EDUCATION IN.

VISION. The simplest approach to the study of children's vision is the observation of children in the classroom and on the playground. In these situations the teacher can note signs of eyestrain and visual difficulty: watery eyes; red, swollen, or encrusted eyelids; styes; lack of coordination in using both eyes; errors in reading letters and figures similar in form; abnormal positions of holding a book; squinting; frowning; etc. From parents the teacher may obtain information about illnesses which may have affected vision, and also about headaches, nausea, dizziness, sensitivity to light, and blurred vision. If medical or nursing aid is not available, the teacher may learn to give the Snellen test with precision and accuracy. More difficult is the interpretation of the findings of the eye examination and the task of getting the defects corrected. Children having visual acuity of 20/30 or less in either eye and who consistently present symptoms of visual difficulty regardless of visual acuity should be referred for further examination and treat-

ment to an eye physician (ophthalmologist).

There are many educational problems arising from defective vision, not all of which are obvious. With some children, defects of vision interfere with school work. In other instances no relation between visual defects and scholastic marks is evident, but strain and discomfort may nevertheless result from the child's attempt to compensate for the visual handicap. It has also been found that children with certain visual defects have more difficulty in learning to read. On the playground, clumsiness and inaccuracy may be due to visual defects. The good adjustment of school children obviously requires systematic and adequate eye examination, correction of remediable defects, provision of activities suitable to the visual maturity of children, control of lighting conditions, and special classroom adjustments for pupils with poor vision.

Irregularities or disorders of vision are many: they may occur in any portion of the visual mechanism, and may be of congenital, nutritional, traumatic (physical injury), or functional (psychogenic) origin. Thus, there may be a loss of transparency in the refracting media such as a *cataract* on the lens, or some similar deposit on the cornea or in the interior of the eyeball. The eyeball may be too short, or too long, or the curvature of the cornea may be irregular, as is the case respectively in congenital far-sightedness (*hyperopia*), near-sightedness (*myopia*), and *astigmatism*. The power of accommodation may be weakened, as normally happens after ten years of age, resulting eventually in the indistinct vision of *presbyopia*. The two eyes may not converge properly, causing the various types of *phorias*, or squint-eyedness. The retina may have an insufficient number of cones, producing *color-blindness*, the red-green variety of which is common to three or four per cent of the male population. The rods may be blocked in action through a vitamin A deficiency so that the individual becomes afflicted with *night-blindness* and is unable to become *dark-adapted* and to see appropriately in the dark. An injury to an optic nerve before its point of crossing may result in blindness in one eye, but an injury between the crosspoint and the brain may give rise to the special condition of half-blindness in each eye, known as *hemianopsia*. Lesions in the

optic cortex may cause total blindness, or only losses in some small part of the visual field, or they may merely impair visual memory—all depending upon the extent and the locus of the lesion. Finally, visual disturbances of pure psychogenic origin may also occur. There may be complete hysterical blindness in one or both eyes, or simply an extreme narrowing of the visual field as in *tunnel vision*, or just a widespread fear and avoidance of light as in *photophobia*. Then, there is the state of general *mental blindness*, when visual stimuli are seen but lose their meaning, and the similar specific disorder of word-blindness, or *alexia*, and, of course, the variety of visual hallucinations and illusions of the truly insane.

The most commonly detected impairments of vision in school children are farsightedness (*hyperopia*) and nearsightedness (*myopia*). The incidence of farsightedness in children entering school is high and decreases as they progress through school, largely because of increased efficiency in accommodation. Astigmatism, which is a structural difficulty resulting in blurred vision, can be corrected by glasses. Poor fusion and depth perception can be detected more easily than they can be corrected, as adequate methods of training the eye muscles have not yet been developed. Fusion difficulties caused by differences in visual acuity in the two eyes or by differences in the size and shape of the images of the two eyes can be corrected by glasses.

G.S.R. and R.M.S.

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VISITING TEACHER—See SOCIAL SERVICE ACTIVITIES IN SCHOOLS.

VISUAL EDUCATION—See AUDIO-VISUAL AIDS.

VOCABULARY—See READING VOCABULARY; VOCABULARY ENRICHMENT, SEMANTICS. IN EDUCATION.

VOCATIONAL AGRICULTURE—See AGRICULTURAL EDUCATION; VOCATIONAL EDUCATION.

VOCATIONAL DIVISION OF THE UNITED STATES OFFICE OF EDUCATION. The Federal Board for Vocational Education, an independent administrative agency (not a part of any federal department) was established by Act of Congress, passed February 23, 1917, to administer the Smith-Hughes Act. (Public—No. 347—64th Congress. Senate Bill 703.) The latter is "An Act to provide for the promotion of vocational education: to provide for cooperation with the States in the promotion of such education in agriculture and the trades and industries; to provide for cooperation with the States in the preparation of teachers of vocational subjects; and to appropriate money and regulate its expenditure."

The duties of the Federal Board for Vocational Education are set forth in detail in the Act. They may be summarized briefly by stating that they call for close cooperation with the states in developing appropriate standards; working out plans of procedure; giving adequate supervision and administration at the federal level; undertaking surveys, investigations, analyses, and studies; furthering and improving vocational education; keeping accurate records of essential data; publishing or causing to be published studies and reports; and giving counsel and supplying leadership where needed in the public interest in vocational education.

The Smith-Hughes Act makes continuous appropriations to be expended in the states under State Plans for Vocational Education. The vocational education program under the Smith-Hughes Act was expanded by the George-Reed Act, the George-Ellzey Act, and the George-Deen Act.

The Federal Board for Vocational Education was also designed as the administrative agency for the Civilian Rehabilitation Act, as approved June 2, 1920, and as amended. By the latter act the federal government agreed to cooperate with the states in an extensive program of civilian rehabilitation. (See VOCATIONAL REHABILITATION.)

Under Executive Order No. 6166, of June 10, 1933, the functions and duties of the Federal Board for Vocational Education were transferred to the Department of the Interior.

These were assigned to the Commissioner of Education, on October 10, 1933.

A little less than six years later, the United State Office of Education was transferred to the Federal Security Agency. Thus the administrative functions of the Federal Board for Vocational Education were assigned to the Vocational Division of the United States Office of Education of the Federal Security Agency. The Federal Board for Vocational Education remains in an advisory capacity to the Commissioner of Education, under the designation *Federal Advisory Board for Vocational Education*. The latter is composed of the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Labor, the Commissioner of Education, a representative of labor, and a representative of manufacturing and commercial interests.

The federally aided program of vocational education of less than college grade is administered, under the Commissioner, by the Assistant U. S. Commissioner of Education and his staff of administrative assistants. For administrative and supervisory purposes, there are four regions: (1) North Atlantic Region [13 states and the District of Columbia]; (2) Southern Region [12 states and Puerto Rico]; (3) Central Region [12 states]; (4) Pacific Region [11 states and Hawaii].

The Vocational Division has an Agricultural Education Service, a Trade and Industrial Education Service, a Home Economics Education Service, a Business Education Service, a Vocational Research and Statistical Service, Consultants in Vocational Education, Employer-Employee Relations, and Public Service Training, and an Occupational Information and Guidance Service.

The Division works with and through the various State Boards for Vocational Education, State Departments of Education, and State Directors of Vocational Education, including corresponding boards, departments and directors in Hawaii, Puerto Rico, and the District of Columbia. The state, insular, and District of Columbia staffs serve as coordinating agents or as liaison between the federal staff and the local city, district, or county organizations.

The Vocational Division recognizes clearly that the administration of the Smith-Hughes Act of 1917; the Civilian Rehabilitation Act

of 1920; and the George-Deen Act of 1938 constitute a cooperative enterprise, and that policy making for vocational education is likewise a cooperative function concerning the states and the United States Office of Education. A series of regional conferences in addition to many state and local conferences has been held each year since 1917, to work out policies, plans, and problems for all concerned. In such a cooperative manner, the *Statement of Policies for the Administration of Vocational Education* (Vocational Education Bulletin No. 1, Washington, D. C., U. S. Government Printing Office) was prepared in 1917, and revised in 1922, 1926, and 1937; in such a cooperative manner the Vocational Division is working with the states not only in the "regular" program of vocational education, but in the extensive program of vocational training for hemispheric security and strength. (See NATIONAL DEFENSE; VOCATIONAL EDUCATION.) F.T.S.

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VOCATIONAL EDUCATION. In its broader sense, "vocational education" refers to life-experiences, education, and training, both direct and indirect, that fit one to carry on a socially useful vocation. In a more restricted sense, "vocational education" refers to specific, functional training for useful employment.

Vocational education or training (the words are often used interchangeably) is given to youth who are getting ready to enter a vocation of their selection; to youth who have entered employment, and who seek to advance in the employment of their choice; to adult workers who wish to increase their efficiency in the vocations they follow; and to youth and adults who need readjustment or conversion training because of unemployment brought on by technological change, or by changes resulting from war or post-war adjustments.

In the United States, vocational education of less than college grade is divided into the following major categories:

1. Agricultural education (*q.v.*), which fits for farming occupations.

VOCATIONAL EDUCATION

2. Trade and industrial education, which fits for occupations in mechanical, manufacturing, building trades and other trades such as beauty culture.

3. Home economics (*q.v.*) education, which fits for the responsibilities of homemakers, including child care, food, clothing, family relations, care of the sick, etc.

4. Distributive education (*q.v.*), which fits for occupations followed by workers directly engaged in merchandizing activities, or in direct contact with buyers and sellers. Distributive occupations do not include clerical occupations such as stenography, nor trade and industrial workers such as those engaged in transportation of goods.

Types of Classes. Classes may be either full-time, meaning classes operating at least 25 or 30 or more hours per week, or part-time. Part-time vocational schools or classes are conducted for persons who have entered employment and who attend school on less than a full-time basis. For example, apprentice training is a form of part-time education.

When individuals get vocational instruction that is supplemental to their employment, such training is of a *trade extension* nature. If the instruction prepares the learner for a job other than, and not closely related to, the one he follows, the training is of a *trade preparatory* nature.

Vocational classes of less than college grade may be federally aided if they are under public supervision and control, if they are taught by qualified teachers, if the housing and equipment and courses of study and other requirements of the State Plan for Vocational Education have been met. Privately operated classes, whether conducted for profit or not, need not meet the same standards unless there is legislation to that effect. There is such legislation in at least one state. Extensive programs of vocational education are carried out under private initiative. Some of this training is of a very high order. There are also many high-grade private trade schools. To illustrate, many employers give job training to apprentices, helpers, and more advanced employees.

Administration. Tax-supported vocational education of less than college grade is administered through the Vocational Division of the United States Office of Education (*q.v.*),

in cooperation with State Boards for Vocational Education, and through the latter in cooperation with thousands of local boards of education.

All of the states, the District of Columbia, Puerto Rico and Hawaii have state, district, or insular plans for vocational education, drawn up in harmony with the provisions of the national vocational education acts and with the policies governing vocational education as drawn up cooperatively by representative federal, state, and local leaders in the field and set forth in Bulletin No. 1 (revised) of the U. S. Office of Education.

For purposes of federal supervision and administration, the United States is divided into four regions, each containing about 12 States, and each in charge of a regional agent and often one or more assistants, working out of Washington, D. C. There are regional and special agents representing the U. S. Office of Education in each of the four major fields of vocational education. The states and insular possessions also have supervisory staffs in each of the major fields who serve in a liaison or coordinating capacity between the federal and the local staffs.

Vocational schools may operate on a local, county, district, regional, or state basis.

More than 1500 state and local representative advisory committees on which labor and employers are equally represented help to determine policies, plan courses of study, recommend qualified teachers, help in selecting equipment, and assist the schools in other ways in making their work practical, functional, and in step with the requirements of today and the probable demands of tomorrow.

Financial Aid. Since vocational education is essential not only to local and state, but also to national and hemispheric security and welfare, the Federal Government has wisely provided substantial financial aid for vocational education at the secondary school level. This aid is provided through the Smith-Hughes Act of 1917 and the George-Deen Act of 1937. All of the Smith-Hughes funds and most of the George-Deen appropriations must be matched on a dollar-for-dollar basis by the states, or local communities, or both. The aid is granted only under carefully prescribed conditions that have been set up in order that the quality of the service rendered shall be safeguarded, and so that the funds

shall be used wisely for the purposes intended. (See FEDERAL AID TO EDUCATION.)

Vocational Technical Training. Technical training is training that involves an appreciable body of known facts or science. Most occupations have some scientific or technical content. For example, an artist must understand the technology of the colors he uses. Technical occupations, however, such as those of industrial, civil, mechanical, electrical, and chemical engineering, call for much scientific training.

The instruction given in all-day technical high schools or classes of the traditional sort is not considered vocational trade training. It is more in the nature of preparatory training for engineering. On the other hand, technical high schools may give technical training that is vocational as interpreted under the Smith-Hughes Act. If such schools prepare draftsmen, surveyors, laboratory technicians, technical inspectors, and the like at a level below that of degree granting institutions, without regard to meeting college requirements, and directly for employment, then such education is vocational in the sense mentioned.

Vocational technical education refers to any form of vocational education the purpose of which is to prepare for wage-earning employment in occupations of a scientific character which occupy an area between skilled crafts and the scientific professions. There is a strong demand in time of war as well as in peace-time for technicians and clinicians of many sorts who do not need four years or more of post high school training. This applies to the areas of agriculture and homemaking as well as to trade and industrial education.

The term *terminal technical training* appears to be especially suitable to describe these forms of technical education. It is being given in a variety of schools and classes, such as technical high schools, vocational schools, and junior colleges—both public and private.

Vocational Teacher Training. All states in the Union, the Insular Possessions, and the District of Columbia have accepted the provisions of the Smith-Hughes Act and the George-Deen Act. The former requires teacher training to be given, and the latter gives additional aid to teacher training in the

various major fields of vocational education. These fields are agricultural, trade and industrial, and homemaking (or home economics) education. The George-Deen Act also provides for training teachers of distributive education.

Such teacher training may be given directly by the State Department of Education, or may be offered by approved teacher education institutions. The courses may be accredited for teacher certification and they may also, under specified conditions, be accepted toward undergraduate and graduate degrees by colleges and universities.

Much vocational teacher training is being conducted for civilians and for personnel in the armed forces in connection with training for national defense and for victory on the battlefield.

Scope. The scope of vocational education at the secondary school level is much greater than commonly realized. Each of the four major fields is divided into many specializations and subjects of instruction. For example, farming is divided into cotton, general, self-sufficiency, animal-specialty, cash-grain, crop-specialty, part-time, unclassified, poultry, fruit, truck, and stock-ranch farming. In each of these, much specialized information and skill are required. (See AGRICULTURAL EDUCATION.)

Homemaking education covers many subjects of which the following are but examples: food for the family, clothing for the family, housing for the family, family finances, family and parental education, home decoration, home management, health and medical care of the family. Each of these may be subdivided into six or more specialized fields. (See HOME ECONOMICS.)

In trade and industrial education specialization is especially evident. A directory of federally aided all-day trade schools, published by the U. S. Office of Education in 1940, based on 1939 statistics, lists 167 trades. A few examples of such courses taught in public vocational schools are air conditioning, auto mechanics, aviation, boat building, cosmetology, dental mechanics, Diesel engines, electricity, graphic arts, instrument repairing, machine shop, neon tube lighting, photography, refrigeration, and welding. (See INDUSTRIAL ARTS EDUCATION.)

Distributive education, too, includes many kinds of instruction. Representative topics are increasing sales to satisfied customers, store service, telephone service, delivery service, credit and collecting service, team work for store efficiency, training employees, buying merchandise, window displays, and advertising. (See DISTRIBUTIVE EDUCATION.)

As of June 30, 1941, more than 2,250,000 persons were receiving vocational education of less than college grade in the "regular" federally aided public schools. Approximately 2 million more men and women were receiving federally aided vocational training for national defense under programs operated with the cooperation of the U. S. Office of Education. These figures do not include the training given by many other public agencies, some of which are mentioned under "National Defense, Vocational Training for" (*q.v.*), nor private schools, agencies, or corporations.

With the passage of the National Vocational Education Act (Smith-Hughes) in 1917, vocational education was given nation-wide stimulation through federal grants to states which would inaugurate vocational education in the public schools. Such education was promoted in three areas, i.e., agriculture, home economics, and trades and industries, on a cooperative arrangement with the states. States were reimbursed out of federal funds on a population proportion plan, and the "matching principle" of providing state aid on the dollar-for-dollar basis was adopted. Later congressional acts—George-Reed and George-Ellzey — temporarily supplemented Smith-Hughes funds, and in 1936 the George-Deen Act provided for additional annual funds (subject to appropriation by Congress) and included distributive occupations as a new area for reimbursement. The text of these acts should be studied for detailed stipulations.

All states quickly took advantage of the opportunity to expand such vocational programs as were already in operation and to inaugurate new programs. Supervisory and advisory assistance is provided by the Vocational Education Division of the United States Office of Education. State supervision is supplied through state boards for vocational education and their staffs, and local administration is in the hands of school boards and

superintendents. Approximately \$22,000,000 of federal funds have been available for reimbursement each year under the above mentioned acts; this is much more than matched by state and local funds.

Agricultural Education. Agricultural education of secondary grade has expanded tremendously under the impetus of the federal acts. All states and territories now offer extensive programs of farmer training through the medium of the public schools. In 1942, 9,000 high schools employed vocational agriculture teachers and enrolled 331,000 high school students. The staffs of the United States Agricultural Education Service, of the state boards for vocational education, and of the teacher training institutions aggregate several thousand highly qualified men. In addition to the training of high school boys for proficiency in farming, vocational agriculture provides courses for out-of-school rural youth and for adult farmers. Young farmer courses enrolled 46,500 in 1942, and adult or evening schools were attended by 209,000 older farm operators.

The outstanding unique feature of vocational education in agriculture is the use of supervised practice as a device in learning. With the objective clearly accepted that the only education of value is that which functions effectively in the lives of the learner, students of vocational agriculture have the opportunity of putting into practice on their home farms, those abilities, both managerial and operative, which have been studied in the classroom by means of discussion, demonstration, and laboratory procedures. Each student selects, plans, carries on, records, and reports upon a supervised practice program consisting of productive and improvement projects and supplementary farm jobs, primarily for the purpose of consolidating his learning. In addition, of course, he "earns as he learns", for all such projects are practical farm enterprises and success is partially determined in terms of financial returns. The total net project income of agriculture students amounts to many thousands of dollars annually.

Vocational agriculture courses are formulated in terms of local community and student needs, and provide instruction in the production, feeding, breeding, housing, and management of livestock; the planting, culture,

and harvesting of crops; the conservation and utilization of soils; farm credit and other economic matters; and farm mechanics, including shop repair and construction, farm machinery and implements, farm power and tractors, farm building, roads, and fences, and farm home conveniences.

"The *Future Farmers of America* is the national organization of boys studying vocational agriculture in public secondary schools under the provisions of the National Vocational Education Acts." There were 245,822 on the active membership list as of June 30, 1942, representing "7,542 local Chapters of 47 States, Hawaii, and Puerto Rico". The primary purpose of this organization, as indicated in the statement of the secretary, "is the development of agricultural leadership, cooperation, citizenship, and patriotism".

Home Economics Education. Home economics education also has had a rapid growth since the enactment of the federal acts. In 1940-41, vocational programs in home-making education were offered in 8,631 day schools, in which 10,129 teachers were employed and 545,408 high school students were enrolled; 244,746 were enrolled in 3,964 adult centers employing 5,105 teachers; and 81,737 were enrolled in 532 part-time schools employing 1,044 teachers.

Vocational education in home economics has for its ultimate objective the improvement of home and family life through the preparation of young people and adults for home living. To accomplish the above objective through instruction, students are taught how to achieve social, mental, and physical well-being as participants in the life of the families of which they are members.

Attention is given to the study of desirable family relationships and to the development of the personality; of the relationships of the family and its members to outside institutions; of the normal development and guidance of children; of definite instruction for a better understanding of physical needs—such as foods, clothing, and shelter—and the means of providing them under current conditions; and of the development of judgment in the wise use of resources, time, effort, and money in meeting home and family needs. Directed home experiences or home projects are considered a vital part of the program.

Trade and Industrial Education. In 1942, in the federally sponsored programs for trades and industries, 2,042 school systems employed 21,809 teachers and enrolled 850,597 students in day trade, part-time, and evening classes. In the day trade classes, pre-employment training, designed for regular high school students 14 years of age and over, is given in automobile mechanics, printing, machine shop, plumbing, carpentry, welding, electrical construction, radio, and similar skilled trades, in which they may earn as much as four units of credit. Evening classes enroll only employed workers 16 years of age and over, and provide instruction which is supplementary to their daily employment, for the purpose of improving their efficiency and earning capacity as workers. One-third of the money allotted to the states for trades and industries must be devoted to the education of young workers who can attend school only on a part-time basis. Although of perhaps minor significance, these classes enroll boys and girls 14 years of age and over and provide instruction designed to continue their general education and at the same time prepare them vocationally.

Diversified occupations is the newest development in the cooperative part-time program of industrial-vocational education. This program enrolls boys and girls of high school age, usually juniors and seniors, who are working part-time in shops, factories, stores, and offices. In this program, which is particularly well suited to the small community, the student learns the practical skills and job procedures of his occupation through practice on the job under the direction of his employer, and in the school he is given instruction in occupational studies and related subjects. These subjects are necessary for the intelligent understanding and practice of his occupation. In addition, he usually takes one or two academic subjects. A special teacher-coordinator teaches the occupational studies and coordinates the two phases of training. Local advisory committees consisting of representatives of employer and employee groups work with the school officials in planning the program.

Clearly, the most outstanding achievement of vocational-industrial education has been the program of training for war production workers. Since July, 1940, more than 5,000,-

VOCATIONAL GUIDANCE

000 workers have been trained in the school shops of the nation, involving an outlay of about \$200,000,000 of federal funds. In this program men and women of all ages and races, as well as many high school boys and girls, have been trained as welders, aircraft workers, machine operators, shipbuilders, and for other types of work essential to the war effort.

In this brief statement, it has been impossible to indicate special variations of practice that the new acts and new regulations have permitted. The national and state offices of education are able to provide information on all phases of vocational education.

S.D. and F.T.S.

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VOCATIONAL GUIDANCE. The National Vocational Guidance Association holds that "Vocational guidance is the process of assisting the individual to choose an occupation, prepare for it, enter upon and progress in it. It is concerned primarily with helping individuals make decisions and choices involved in planning a future and building a career—decisions and choices necessary in effecting satisfactory vocational adjustments."

It is to be noted that the emphasis in the preceding definition is on self-activity with the counselor in a helping relationship; that the process of vocational guidance is a long-term one; and that vocational guidance takes place outside of, as well as in the school. In our fast-moving, complex and ever-changing life, vocational guidance, in its organized form, serves vitally essential functions. Through guidance young people find and retain their place of social and economic usefulness; through it adults are helped in the difficult tasks of war-time and post-war vocational adjustments. Intelligent, wisely ad-

ministered vocational guidance is a practical means of conserving human resources—as is vocational education, but in a different manner.

Vocational guidance and vocational education are interrelated, correlative functions. Vocational guidance is of help in selecting a vocation and in making adaptations as circumstances require, whereas in vocational education the individual is assumed to have selected his occupation. The emphasis in vocational guidance is on self analysis, counsel, information about occupations, working conditions and opportunities. Vocational education focusses upon making persons employable and efficient producers through developing occupational skills and related knowledge.

Illustrative of the correlative functions of vocational guidance and vocational education is the procedures of giving information about aircraft, how they are made, the materials and processes involved, the working conditions in aircraft manufacturing plants and in repair depots, and of selecting workers who have the interest, physical, mental, emotional and other traits needed in those aircraft plants and depots. Without specific, functional vocational training the guidance and selection efforts would fail to function. Aircraft workers are not produced by vocational guidance alone. On the other hand the management of aircraft plants does not wish to hire persons who have little or no interest in, and aptitude for, the work that must be done in their establishments. At this point good vocational guidance is of much practical value—it helps to find the right individuals for jobs as they are, and assists them in carrying on those jobs successfully.

Vocational guidance is not to be confused with the broader function of education. Neither is vocational guidance to be confused with other forms of guidance, such as school, curriculum, or educational guidance, recreational guidance, health guidance, and community service guidance.

Vocational guidance seeks to minimize the extensive losses annually resulting from persons entering and staying in occupations for which they are poorly suited. It is a major social obligation in a democracy to see to it that youth and adults are assisted through carefully planned, professionally

administered, socially inspired vocational guidance.

Vocational guidance functions through: (a) Vocational information service—giving individuals information about occupations through reading, discussion, interviews, visual-sensory aids, and other means. (b) Self-inventory service—teaching individuals how to study and assess their own aptitudes, abilities, interests, and ambitions. (c) Personnel data. (d) Counseling—this calls for an understanding of persons on the one hand, and of occupational life on the other. Counseling may precede employment, be given during employment, or take the form of adjustive service for individuals who may need to make occupational and other adaptations.

Effective guidance includes laying a sound background for selecting occupations, for placing individuals after they have had the necessary pre-employment training, for following them up to see that they succeed, and for suggesting supplementary or adjustive education when needed. (See GUIDANCE; VOCATIONAL EDUCATION.) F.T.S.

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VOCATIONAL INFORMATION — See OCCUPATIONAL INFORMATION.

VOCATIONAL INTERESTS. It is a truism that the vocational interests of youth change with their educational, social, and economic insight. Courses in occupations, in vocational guidance, and in various forms of practical arts, as well as other exploratory courses, are useful in helping to determine and develop vocational or occupational interests.

There are a few helpful, though broad, standardized vocational interest tests. Among the best known as the "Vocational Interest Test for Men," and the "Vocational Interest Test for Women," developed by Dr. E. K.

Strong of Stanford University. Tests of this kind are useful in determining in what groups of related occupations or professions one has interest. For example, they may reveal that the examinee has a general aptitude for or an interest in teaching. However, they are not specific to the extent of indicating, for example, the subject or subjects for which he would have special qualifications or would most enjoy teaching.

Work experiences obtained under actual conditions of employment are valuable as an aid in determining vocational interests, but it is usually necessary to make a vocational choice before such experience can be obtained. (See also OCCUPATIONAL INFORMATION, PRACTICAL ARTS, INDUSTRIAL ARTS, and OCCUPATIONAL TESTS.) F.T.S.

VOCATIONAL REHABILITATION.

The first Federal act aimed at vocational rehabilitation was a direct outgrowth of the World War. The *Smith-Sears Act* of June 27, 1918, 40 STAT. 617, as amended July 11, 1919, 41 STAT. 158, was intended for the vocational rehabilitation of disabled soldiers, sailors, and marines who were unable to carry on gainful occupations. Suitable courses were provided; during the learning period, provision was made for the financial maintenance and support of the disabled veteran and his family.

Very soon after the passage of this act, attempts were made to broaden its scope to include all disabled persons; among such proposals was the *Smith-Bankhead Bill*, but no action was taken on it. The *Vocational Rehabilitation Act* of June 2, 1920 (41 STAT. 735, 29 U.S.C. 31-44) was broader in scope, applying to disabled civilians and providing "for the promotion of vocational rehabilitation of persons disabled in industry or otherwise and their placement in employment." Additional appropriations were provided in 1924, 1930, 1932, and the Act was extended to cover Hawaii in 1924, the District of Columbia in 1929, and Puerto Rico in 1931. The essential difference between the soldier and the civilian acts, apart from their coverage, was that the soldier act made rehabilitation a direct responsibility of the Federal government; while under the civilian act the States bore the direct responsibility.

Under the *Federal Emergency Relief Ad-*

VOCATIONAL SUBJECTS

ministration (FERA), which was established in 1933, some funds were set aside for vocational rehabilitation in the States.

The program was put on a permanent basis through the adoption of the *Social Security Act* of August 14, 1935 (49 STAT. 633, 42 U.S.C. 301); appropriations were increased in 1939 (Sec. 53 STAT. 1381 Sec. 508).

By vocational rehabilitation is meant the procedure or process of fitting a disabled person for remunerative employment. The law defines a disabled person as "any person who, by reason of a physical defect or infirmity, whether congenital or acquired by accident, injury, or disease, is, or may be expected to be totally or partially incapacitated for remunerative occupation."

The Federal Vocational Rehabilitation Act is administered by the United States Office of Education, through a director of the Vocational Rehabilitation Division. This division works in cooperation with state boards of vocational education, and more particularly with state directors of vocational rehabilitation toward the two-fold purpose of bringing about the vocational reestablishment of persons with employment experience who have become unable to work at occupations because of permanent physical disability, and also to reestablish vocationally persons without employment experience who are permanently physically handicapped and whose opportunities for employment are materially reduced because of such disability.

A distinction is drawn between persons who get medical, surgical, and other restorative service which does not result in employment, and vocational rehabilitation which does. Physical restoration may, however, be a part of vocational rehabilitation. There must be a return to, or establishment in, employment.

In order to cooperate with the federal plan, the State must (a) accept the provisions of the Federal Vocational Rehabilitation Act, (b) cooperate with the Office of Education in the administration of the Act, (c) prepare a state plan of cooperation between State workmen's compensation agency and the State Board for Vocational Education administering the program, (d) arrange for the financial support and supervision of the program, and (e) appoint the state treasurer as

custodian of the federal funds allotted to the state for rehabilitation purposes.

The state rehabilitation staffs consist of a state supervisor or director, district supervisors or directors, and agents who are often known as case workers, field agents, or assistant supervisors. The various state and district offices may have stenographic and other office workers. "Case records" are kept which contain much essential information about each person—the result of careful diagnosis.

At the outset, it must be determined whether or not physical restoration is necessary. Competent specialists, such as orthopedic surgeons, determine this. When physical restoration is likely to be beneficial, such service may constitute the first step. Following this a suitable occupational objective is determined. This is followed by training—either "on the job" or in public or private schools suited to the purpose. In some cases training is given through correspondence schools, extension classes, vocational schools, and technical schools. When training is given "on the job" care must be exercised that exploitation of the trainee does not result. In fact that might also happen in some schools. The state supervisor and field staff work to prevent this abuse.

Placement and follow-up service, and retraining if necessary after placement, are essential features. The test of the effectiveness of the service rendered is measured objectively by improved earning capacity, but the feeling of satisfaction that comes to those who have been helped through rehabilitation to earn their living is an even more valuable, though less easily measured, result of vocational rehabilitation.

H.N.R. and F.T.S.

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VOCATIONAL SUBJECTS—See VOCATIONAL EDUCATION; RELATED INFORMATION; SHOP WORK.

VOCATIONAL TEACHER TRAINING — VOCATIONAL TRAINING

VOCATIONAL TEACHER TRAINING
—See VOCATIONAL EDUCATION.

VOCATIONAL TRAINING—See Voca-
TIONAL EDUCATION.

W

W. P. A.—See WORKS PROGRESS ADMINISTRATION, EDUCATIONAL WORK OF.

WALES, EDUCATION IN — See ENGLAND AND WALES, EDUCATION IN.

WASHINGTON, BOOKER T. (c. 1859-1915). Booker T. Washington ranks among the most influential American educational leaders. Washington, a mulatto born into slavery, was educated at Hampton Institute where he accepted General Samuel Chapin Armstrong's educational and social philosophy. Armstrong emphasized character building, instruction in the agricultural, household, and other vocational skills, teacher training, and a missionary zeal for the improvement of the Negro race through practical education. Washington founded Tuskegee Institute in Alabama in 1880, and remained at its head until his death in 1915. Under his leadership Tuskegee developed a hospital and nurse-training school, teacher-training, industrial courses, and the household arts. Its influence extended not only into the outlying area but throughout the entire South. Washington himself became the dominant figure in Negro education during his lifetime; his influence continued long after his death.

When Washington began his work at Tuskegee, Negroes were in the throes of discouragement and disillusionment. The "restoration of white rule" in the South in 1877 seemed to make it all but impossible for them to continue their struggle for educational, social, and political advancement. On the basis of the practical educational program which Washington had familiarized himself with at Hampton and the exigencies of the situation at Tuskegee during its early years Washington formulated and promoted an educational and social philosophy which in many respects was new.

In his teachings at Tuskegee and in his speeches and writings, Washington minimized political power and race militancy and emphasized industrial training, character education, and the middle class virtues. He taught

the Negroes who came under his influence "to dignify and glorify common labor, and put brains and skill into the common occupations of life." Washington believed that racial prejudice against the black could be best broken down if the Southern white could be convinced that a program of industrial and practical education for the Negroes would enhance their economic value. In view of the fact that the ruling race controlled the very fate of the Negro, such a position was in many respects a realistic one. Washington warned white men that if they held the Negro in the gutter, they would have to stay in the gutter themselves in order to keep the Negro there. The astute leader at first said very little about the constitutional right of the Negro to vote. Gradually he took the position that if the educated, property-owning Negro made it clear he would cast his vote for the Democratic party, the party which was held in white circles to represent Southern interests, the Negro would be permitted to exercise his suffrage rights. To the Negroes themselves Washington urged the importance of learning the various industrial skills and acquiring the middle-class virtues of frugality, diligence, sustained effort, honesty, and usefulness. These skills and virtues, he insisted, would enable the blacks to become property-owners, to enter the ranks of business, in short, to succeed. Racial advancement was certain, Washington held, to result from the individual advancement of members of the race. On the rare occasions when Washington referred explicitly to the race question, which he thought must be "*lived down, not talked down,*" he reiterated the sentiment expressed in his famous address at the Cotton States Exposition in Atlanta in 1895: "in all things that are purely social we can be as separate as the fingers, yet one as the hand in all things essential to mutual progress."

Thus Washington's social philosophy of education emphasized race and class cooperation, rather than militancy and antagonism,

and embraced for the Negro the characteristically American middle-class values of self-help, success through usefulness and character, the dignity of manual labor, and the doctrine of progress.

Within this general social philosophy Washington developed a definite educational outlook and technique. At Hampton he had learned many of the white man's ways and values through the work which he did to earn his way. In the early days at Tuskegee it was necessary for the students to construct buildings, grow, prepare, and cook their food, and provide for their other material needs. Thus it was natural for them to learn arithmetic by figuring the cost of constructing and painting a building, by measuring an acre of land, by estimating the cost of producing and preparing pork and potatoes. As the school developed such industries as brick-making, to meet its own and the community's needs, an opportunity was provided for studying the history of the practical arts. All these matters formed the basis for instruction in English composition. Washington early discovered the basic principle that education was far more meaningful to students if "it stuck close to the common and familiar things—things that concern the greater part of the people the great part of the time." By the necessity of the situation education at Tuskegee was problem-solving, a problem-solving which rested, not on artificially created devices, but on the compelling needs of existence. Washington's emphasis on the social and educational significance of purposeful training makes him a great, pioneer educational leader. He gave the world a practical example of "a broader and more generous conception of what education is and should be than it had had before."

When it became clear that the educational achievements of the Negroes did not in fact seem to soften the caste system, Washington's emphasis on patience, acquiescence, and optimism occasioned criticism among many younger Negroes. This criticism became more marked when it became apparent that the type of industrial training which Tuskegee provided was obsolete in view of the rapid development of mass production through machinery and in view of the discriminations, at the hands both of employers and trades unions, against the Negro in the new type of factory industry. The relatively little em-

phasis Washington put on esthetic experience and on the characteristic cultural contributions of the Negroes in their arts, songs, and dances, similarly met with criticism among militantly race-conscious Negroes. Still others resented the "educational machine" which Tuskegee and Washington represented, a "machine" so powerful that no Negro could expect advancement in many educational quarters without the stamp of approval of the dominant leader.

In spite of these criticisms, some of which were from many angles of vision valid enough, Washington's shrewd common sense and statesmanship, his skill in developing racial contacts at a time when this was difficult to do on any level of mutual respect, and his emphasis on the dignity of labor and the possibility of a better life for his people give him true greatness of stature. (See also NEGRO EDUCATION.) M.E.C.

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WEEKLY PROGRAM—See PROGRAM, DAILY.

WELFARE SERVICES (SCHOOL)—See SOCIAL SERVICE ACTIVITIES IN SCHOOLS.

WHOLE VS. PART LEARNING—See LEARNING.

WHOOPING COUGH—See COMMUNICABLE DISEASES OF CHILDHOOD.

WINNETKA PLAN. At Winnetka, Illinois, the standards for the various grades of the elementary school are defined, and each pupil progresses toward these standards at his own pace. The great majority of pupils

meet the standards at the usual time, and there is no skipping of grades. Since the work is individualized and recitations are not needed in the academic subjects, a teacher in the fourth grade may have a few pupils who have not quite completed the work of the third grade as well as some pupils who have already started on fifth grade assignments. A bright fourth grade child, who would be mal-adjusted socially if he were promoted to a fifth grade class, may be working on the assignments for the fifth grade, even though he is kept with the fourth grade children for the sake of his social adjustment. Likewise, a slow learner can be with his own social group in the fifth grade room but be doing fourth grade work. Some pupils finish the elementary school in less than the usual six years, though others may not finish for seven years.

The Winnetka plan operates as in any other school so far as club, dramatic, physical education, and other group activities are concerned. The individualized phases pertain to the tool or academic subjects, and take about one-half of the school day. The plan enables the school to adjust the child's rate of progress to his ability, without exposing him to the emotional problems attendant upon either failure and retardation or forced association with older children.

F.A.B.

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WOMEN TEACHERS—See **TEACHERS**, STATUS OF.

WOMEN'S COLLEGES. The history of higher education for women, dating back to a little more than a century ago, is brief in comparison with the history of colleges for men. The effort to provide college training for women has progressed against the obstacles of the traditional belief that no training beyond the rudiments of literacy was required for the work which women were destined to perform. This narrow concept of "women's place" was expressed not only by limited educational opportunity but by statutory disbarment from electoral rights until 1920.

Before 1920 college courses for women were, in the main, of two sorts: (1) courses patterned after those in men's colleges, ap-

parently with the purpose of demonstrating that "women could learn whatever men could learn"; and (2) courses designed to perfect the "gentler sex" in the practice of approved conventions, including the niceties of social etiquette. But with the opening of the door to equal participation in civic and political matters and with the increased participation of women in business and the professions came the inevitable pressure for a type of education suited to women's broadening activities. As a result, education for civic and professional fields developed more rapidly than education for the already established needs of home, family, and community life. Only in recent years has there been any marked recognition of the need of training for the responsibilities of marriage and home-making.

Elementary training, including the fundamental skills of language and of numbers, has, of course, long been available to girls as well as to boys. Even the opportunities of secondary training, which is largely an extension of the basic subjects, were claimed by women from the beginning of the history of the American public high school. But "higher education," the education provided by the college, was for more than a century after the founding of the first colleges in America education of a highly specialized character concerned primarily with the traditional preparation for professional pursuits. Although the changed status of women has opened the doors of professional training to them, the focus of attention in developing the college program for women must remain fixed on the broader aspects of women's responsibility, namely the responsibility for competent guidance and direction of the life of the home and the community. In other words, educational programs for women, while they may include unrestricted opportunity for vocational choice, will center largely in the field of general education.

Looking at the current trends in women's education, one sees a community of aims emerging: (1) to provide training which will satisfy the normal cultural and intellectual needs and interests of women in home and community activities, (2) to provide training which will make for greater personal competence and efficiency as an individual, (3) to provide for occupational needs and in-

terests to insure economic self-dependence and family security, and (4) to train for effective citizenship through an increased understanding of civic responsibilities and a more intelligent participation in the democratic processes of government.

To set up a curriculum pointed toward the realization of these objectives, a critical examination of women's activities (together with a broad survey of social needs) has been required. For practical purposes such an analysis is made on the basis of intelligent observation. A functional educational philosophy moves surely and unmistakably toward a curriculum that answers observable and recognized needs. But such philosophical observation should be supported by social and educational research. The most far reaching study of this sort was conducted by Dr. W. W. Charters in 1920 upon the assumption of his duties as Director of Research for Stephens College. This basic activities study clearly identified certain areas of interest and need, prominent among which were civic and social understandings, æsthetic appreciation, intelligent consumership, communicational ability, religion and ethical values, physical and mental health, home and family responsibilities, and vocational interests.

Obviously traditional subjects cut across many of these fields, but for better focusing of instruction a reorganization of subject matter is necessary. Divisional barriers between subjects must be broken down and integrating relationships established. In many cases the answer to this need has produced new basic courses, examples of which are the courses at Stephens College, Columbia, Missouri, in the Humanities, the generalized course in Communications, and other basic "area" courses. In many women's colleges a similar trend in the adaptation of the curriculum is evident.

Current trends in educational philosophy and in the interpretation of social needs are bringing closer together the curricula for women and the curricula for men in modern colleges. This does not mean that there is a reversion to the traditional academic curriculum of the 19th century but rather that a clear vision of democratic needs is actuating reforms in higher education for both men and women. Political equality, industrial participation, common character needs and values, and broadening occupational oppor-

tunities have operated to bring about a convergence of purpose in the total program of education for youth.

There will always be, however, a difference between the educational men and the educational needs of and a corresponding difference in the ways in which those needs can be fully met. These differences are due to inherent differences in nature and to bility of function. Equality does not identity. To educate women for their potential contribution, the educator must consider their basic psychological and characteristics, their predisposition to religious and æsthetic appreciations, peculiar responsibility as the of young children, their position in the home and the community as the consumer-spender of more than eighty per cent of the wages and salaries of the nation, their responsibilities in health conservation and home management. Such considerations will always dictate a distinctive and significant emphasis in the subject matter of college courses designed for the education of women. The advantage of the separate college for women is that this emphasis can be and is more clearly evident. In the commonality of the subject matter of the coeducational class, the differentiating accent is lost, the individual application is neglected, even though the content of the course may be basically functional for all. J.M.W.

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WORD ANALYSIS. Word analysis is a term which includes all methods of dividing a word into parts or considering its details as an aid in word recognition and in spelling. Some training in word analysis is a necessary supplement to the widely used

Methods which teach words as units by a recognition approach.

There are many techniques that are frequently employed in analyzing words. (1) Attention may be paid to the first letter or of a word and to the word's general shape or configuration, aided by the meaning context of the sentence. This technique, frequently and effectively employed by good readers, is used excessively by some children with much inaccuracy as a result. (2) Relationship to words already learned may be noted, as for example, a child is helped on the word *shell* by noting its similarity to *tell*. (3) Small familiar words may be found within larger unfamiliar words. Care must be taken not to over-emphasize this procedure because of the danger of interfering with consistent left-to-right habits of observation. (4) Specific differences between words that are frequently confused may be noted and emphasized. (5) Words may be analyzed phonically—by syllables, phonograms, or single letters.

A good reader knows and can use several methods of word analysis, so that if one procedure does not succeed on a particular word he is able to try another. Well-rounded instruction in reading should give the pupil versatility in word analysis. (See PHONICS; and READING, METHODS OF TEACHING.)

A.J.H.

WORD COUNTS—See READING VOCABULARY.

WORD METHOD (READING)—See READING, METHODS OF TEACHING.

WORK PERMITS—See CHILD LABOR; COMPULSORY ATTENDANCE.

WORKBOOK. While it is impossible to make a satisfactory classification of all types of workbooks, most modern workbooks can be classified into the following three general types: (1) Those containing only practice exercises, achievement tests, diagnostic tests, and other types of exercises with space for the work in the booklets. This type is designed to be used for supplementary work independent of any particular textbook. (2) Those containing directions for study, exercises, tests, etc., designed for use with some particular textbook to supplement the text material, or to provide additional learning experiences for class or individual needs.

These usually provide space for pupil's work. (3) Those consisting of outlines of units designed to cover a given field without paralleling any particular textbook. These usually contain detailed directions for study, instructional aids, exercises, tests, references, etc., and space for the pupil's work.

It is difficult to determine the exact origin of the workbook as a teaching device. While laboratory manuals and pupil workbooks of the notebook type date back to the introduction of the laboratory sciences and the source method of studying history before 1900, the modern workbook seems to be the product of the emphasis, since 1900, upon individual needs and individual differences. During the period from 1900 to 1920, emphasis upon the development of the individual child and individual learning experiences centered attention upon plans for individualizing instruction. During this same time emphasis upon the objective measurement of abilities and skills resulted in the production of exercise pads and booklets designed to supplement the regular textbook and provide extra material needed for drill and other individual needs. These movements prepared the way for the flood of modern workbooks which have been produced in abundance since 1920.

There seems to be considerable difference of opinion among educators as to the value of the workbook as a teaching device.

According to its advocates, the workbook may be used (1) to supplement classroom exercises, (2) to give practice needed to perfect abilities and skill, (3) to test self-improvement and achievement, (4) to diagnose learning difficulties, (5) to provide for individual differences and interests, (6) to provide a record of work to motivate self-improvement, and (7) to provide for independent, individual work. Workbooks save time for the busy teacher who could not otherwise supply suitable supplementary material. Many workbooks provide standards for comparing records of achievement, which would not be available otherwise. Rightly used, a good workbook may be a valuable asset.

Wrongly used, the workbook may prove a handicap to effective learning. There is no substitute for teacher and pupil planning—there is danger that the workbook, being convenient, may systematize teaching and learning to such a degree that the personal, inspirational teacher-pupil relationship may

be lost, and that far from adapting learning to individual needs and interests, it may channel learning into one inflexible groove. If pupils are set to hunting up and copying answers there may be little real learning. Lack of adequate library facilities prevents effective use of some workbooks. The cost may be too great in proportion to the value received, unless the workbooks are used effectively.

Workbooks should be chosen with as much care as textbooks, with special attention to the needs of the particular class and the individual students.

T.M.R.

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WORKERS' EDUCATION. Three types of workers' education are represented in American institutions. They might be characterized as (1) education for the underprivileged, (2) union education, and (3) education in political ideologies. These types are of course never found in their pure form, but shade continuously into one another.

The first has been favored by certain leaders in the workers' education program of the Works Progress Administration (*q.v.*), and some of the scholarship committees of the labor colleges. Education for the underprivileged, which has the same basis as the adult education literacy program, implies that industrial workers who have not had the advantages of middle class Americans are entitled to have their education deficiencies remedied in adult life. Removing deficiencies ordinarily means teaching the elements of reading and writing, plus some materials suitable for use in union meetings. Emphasis is put on the fact that though the materials employ elementary academic skills, they are keyed to adult interests, particularly interests of workers in industry. Occasionally the argument about the necessity for remedial education is used by scholarship committees as a screen for securing money.

The second type, union education, has been subject to the limitations which shackled the labor movement at the time the educational movement gained momentum in the early 1910's. Social thinking in the American Federation of Labor focused on the idea that if a

union could control a job field by 100 per cent organization, the economic problems of its members would be solved. Many union leaders refused to see any relationship between the welfare of its union members on the one hand, and the welfare of unorganized workers, the political scene, or international affairs on the other. Education which followed on the heels of this thinking was concerned largely with aspects of how to run a union: public speaking, parliamentary procedure, collective bargaining. Occasionally it branched out into labor history and labor economics; but as it branched, students became fewer. Labor institutes or labor colleges (bearing no relationship to accredited institutions of higher learning) sprang up in large industrial centers. A workers' education bureau which began as an independent organization finally became a permanently supported part of the American Federation of Labor. It now promotes short institutes in conjunction with labor conventions, and gives other types of education service. A few organizations have developed programs of health education, drama, and recreation; and financed workers' centers. The International Ladies' Garment Workers' Union has had one of the most complete programs of this kind. Since the inauguration of the workers education program of the Works Progress Administration, more teachers have been available for all activities fostered by the unions. But this educational assistance has been of doubtful effectiveness because teachers are chosen largely from relief rolls. Some of the schools in the one time Affiliated Schools for Workers (now the American Labor Education Service) fit in this category. The Wisconsin School for Workers is one of the best of these, having a far-sighted program of economic and political education, and at the same time adhering to the fundamental principle that a genuine education movement must grow out of those organizations in which adults are already interested. There have been attempts to make consumer cooperation the subject of the economic education of labor, and co-operatives have gained support in some areas. However, far-sighted programs are the exception, not the rule; and the rule is a narrowly conceived education addressed to the organizational prejudices of business agents.

The third type of workers' education has flourished in schools (some in the Affiliated Schools for Workers) to spread special political ideologies, particularly the manifold phases of communist and socialist doctrine. Education in political ideologies is emphasized by several schools located both in New York and on the Pacific Coast, although some of these schools, such as Brookwood Labor College in New York and Commonwealth College in Arkansas, are not at present in operation. All these schools had their inception outside the labor movement proper, in the minds of so-called intellectual radicals. They were never able to secure full support of rank and file workers who looked on their political leanings with suspicion. Though these schools have often done a fine job, they have made the mistake of attempting to impose a philosophy on the labor movement, rather than assisting a philosophy to grow in the native soil.

By and large workers' education is prey to that disease of disjointedness which possesses much of organized public adult education. (See ADULT EDUCATION.) It is not yet recognized by labor leaders as an integral and a vital part of the labor movement; nor are its manifold activities directed toward any central goal. Such an obvious medium as the labor press, for instance, has apparently never been considered a part of a comprehensive educational pattern. Consequently, there is no great labor daily which can interpret a viewpoint both to the public and to the organized workers. Organized labor is still relatively incoherent on large national and international issues, attesting to a lack of education in the social sciences. It has been loathe to trust educational experts, assuming that they knew nothing of the practical problems of labor organization; and practical leaders with educational vision have been scarce in the labor movement.

Out of the activity in the general area of workers' education, two movements at the present time show promise of future educational strength. One is the attempt, primarily by the Congress of Industrial Organizations, to interpret the union viewpoint to the whole American public, particularly via radio. The other is the coalition movement initiated by the Farmers Educational and Cooperative Union of America to consolidate the thinking

of farm and labor groups. In at least one state the movement has taken the form of joint action through a legislative convention to secure legislation for farm, labor, and educational groups. Though conventions are common in the United States, this particular one was unusual. That it took place at all was the result of educational vision and planning which brought together such diverse elements as representatives of all the farm organizations, the state federation of labor, the parent-teacher association, the state education association, the railroad brotherhoods, and civic groups. On a national scale, the coalition movement of farm and labor groups is bringing about widespread cooperation on such issues as distribution of manpower. Of the two educational movements, this is by far the more important; for it is the nucleus of farm-labor-education planning on an international scale.

G.A.W.

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WORKING PAPERS—See CHILD LABOR; COMPULSORY ATTENDANCE.

WORKS PROGRESS ADMINISTRATION, EDUCATIONAL WORK OF. The Works Progress Administration was born of the Federal Emergency Relief Administration by an Act of Congress in 1935 to provide a comprehensive plan for employing physically able relief clients on socially useful public works submitted by national, state, and local public agencies. On July 1, 1939, the Works Progress Administration was transferred to the Federal Works Agency and renamed Works Projects Administration (hereinafter called the W.P.A.). This agency was terminated by executive order of President Franklin D. Roosevelt on December 4, 1942, which called for its final elimination by February 1, 1943.

The educational work of the W.P.A. was built upon the program started under its early predecessor, the Federal Emergency Relief Administration. Its primary purpose was to provide employment for needy, unemployed teachers and others qualified to

WORKS PROGRESS ADMINISTRATION

teach adult classes. The secondary purpose was to develop a socially useful educational program of classes, which were designed:

(1) To provide for adults, unable to read and write English with the ability of an average fifth grade pupil, classes in Americanization and elementary school subjects, so they might become informed citizens able to contribute usefully to their state and country.

(2) To provide opportunities for special training in vocational fields for those persons out of a job or who wished to become more proficient in their chosen vocation.

(3) To make available to adults certain types of general education classes, suited to their needs and desires, which would fit them to be informed, self-respecting, socially useful citizens. Examples of this were the parent education (*q.v.*), workers' education (*q.v.*), and similar programs.

(4) To provide a type of preparatory vocational training for physically handicapped adults, which would fit them for positions by which they might become useful, self-supporting citizens.

(5) To provide opportunities in nursery schools taught by needy, unemployed teachers for children, ages 2 to 5, of needy, unemployed families, in order that the educational experiences thus derived would develop the physical and mental well being of these underprivileged children.

The administration of the educational program was vested in a director on the staff of the National Administrator of the W.P.A. program. The administration of the program within the states varied greatly. In some states a member of the staff of the state superintendent of schools was the directing head, responsible primarily to the superintendent and paid by the superintendent's office. In other states, the directing head was a person, sometimes politically chosen, who was responsible primarily to the state W.P.A. administrator. Theoretically, statewide educational projects were to be approved and sponsored by the state superintendent of schools, but in some cases other means were utilized.

As the program progressed, its direction and control fell more and more closely under the W.P.A. authorities, with a parallel decreasing interest in it on the part of public school boards and executives, who served as

local sponsoring agencies for the educational projects. Toward the close of the program, most of the better teachers had secured other public or private employment.

The educational program of the W.P.A. reached its peak in the number of students enrolled in the month of April, 1936 (1,853,601 enrollees and 42,543 teachers, an average of 44 enrollees per teacher), and its peak in the number of teachers employed in the month of March, 1935 (44,284 teachers and 1,725,093 enrollees, an average of 39 enrollees per teacher).

Among the general achievements of the educational program of the W.P.A. should be listed the following:

(1) The awakening of the public generally to the importance and significance of the comparatively new fields of adult education (*q.v.*) and the nursery school (*q.v.*).

(2) The acquisition of the elementary skills of reading and writing by virtually millions of previously illiterate adults.

(3) The vocational rehabilitation of many previously unemployed adults, some physically handicapped, who were enabled to qualify for jobs in private employment.

(5) The rehabilitation of many unemployed teachers who gained teaching experience of continuing value in whatever positions they later assumed.

(5) The training in the field of adult education acquired by thousands of teachers and executive and supervisory staff personnel who directed the programs.

(6) The development of underprivileged pre-school children in nursery schools along with the training of their parents in the care and handling of children.

The impetus given to progress in the field of adult education through this experimental program on a broad scale should, on the whole, be a favorable one over the years.

R.J.M.

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WORKSHOP, TEACHERS' — See
TEACHER WORKSHOP.

Y-Z

YEARBOOK, STUDENTS' — See PUBLICATIONS, SCHOOL.

YEN, JAMES YANG-CH'U. (1894-). James Yang-Ch'ü Yen, a pioneer and active leader of the mass education movement in China, was born in 1894 in the province of Hunan. He is a graduate of Yale University and took post-graduate work at Princeton University, where he received his M.A. degree. His interest in the education of the masses began at the time of World War I, when he served as secretary of the Y.M.C.A. with the Chinese Labor Corps in France. Most of the laborers in the corps had had no schooling and could neither read nor write. Charged with the task of providing an adequate program to improve their morale, Yen decided to give them some elementary instruction in the Chinese language. The initial efforts met with encouraging response from the workers, who were eager to learn. Yen wrote his own textbook and later, with the help of other educational leaders, published a simple Chinese newspaper called the *Chinese Laborer's Weekly*. In the course of a few months the workers were able not only to write letters to their relatives and friends in China, but also to read simple news dispatches.

Returning to China after the war, Yen devoted himself to further efforts in mass education. As Chairman of the Department of Popular Education of the National Y.M.C.A., he conducted surveys in various cities and towns, finally choosing the city of Changsha in Hunan province as the first experimental station. In the meantime, other educational experts in China had been making a careful selection of the most commonly used characters of the Chinese language. Based on these findings, a series of four textbooks known as "The People's Thousand-Character Lessons" was compiled by Yen and his associates. The books, using a vo-

cabulary of one thousand most commonly used characters, constituted a literacy course which could be mastered in four month's time, with a total of ninety-six hours of instruction.

The experiment was carried to other centers, and interest in the movement grew so rapidly that a national conference on mass education was convened at Peiping in the autumn of 1923. An outgrowth of the conference was the organization of the National Association of Mass Education Movement, with Yen as general secretary. From then on, the movement became nationwide in scope. Provincial governments as well as the national government have been paying increasing attention to what is now generally known as "popular education" or "adult education."

In 1928 Yen moved his headquarters to Tingsien in Hopei province. Attention was now given to the problems of the masses in a rural community. The objectives of education were broadened to include the reconstruction and betterment of rural life in its cultural, economic, health, and political aspects. After the outbreak of the war in 1937, the Tingsien station was abandoned and new experimental districts established in Hunan and Szechwan. Leadership is now provided by the National College of Rural Reconstruction in Eastern Szechwan, which has enlisted the support of many prominent leaders of popular education in China. Yen serves as secretary of the college's board of trustees. (See CHINA, EDUCATION IN.)

T.H.E.C.

YES-NO TEST—See OBJECTIVE TESTS AND EXAMINATIONS.

YOUTH COMMISSION—See AMERICAN YOUTH COMMISSION.

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J.E.W.W.	-	-	-	J. E. W. WALLIN	P.M.Y.	-	-	-	PABLO MAX YNSFRAN
J.F.B.-1	-	-	-	JAMES F. BENDER	P.R.H.	-	-	-	P. R. HAYWARD
J.F.B.-2	-	-	-	J. F. BROWN	P.R.V.C.	-	-	-	PHILIP R. V. CUROE
J.G.A.	-	-	-	J. G. ALTHOUSE	R.A.K.	-	-	-	R. A. KENT
J.G.C.	-	-	-	JOSEPH G. COHEN	R.C.	-	-	-	RENATA CALABRESI
J.G.R.	-	-	-	JOHN G. ROCKWELL	R.E.	-	-	-	ROSCOE ELLARD
J.H.	-	-	-	JENNIE HAXTON	R.F.B.	-	-	-	R. FREEMAN BUTTS
J.H.S.	-	-	-	JACOB H. SHACK	R.H.T.	-	-	-	ROLLIN H. TANNER
J.I.H.	-	-	-	JACOB I. HARTSTEIN	R.J.M.	-	-	-	ROBEN J. MAASKE
J.J.	-	-	-	JOSEPH JUSTMAN	R.L.S.	-	-	-	R. L. SACKETT
J.J.D.B.	-	-	-	JOHN J. DEBOER	R.M.B.	-	-	-	RICHARD M. BENNETT
J.J.L.	-	-	-	JOHN J. LOFTUS	R.M.H.	-	-	-	ROBERT P. MACHATTON
J.M.W.	-	-	-	JAMES M. WOOD	R.N.C.	-	-	-	ROSE N. COHEN
J.P.G.	-	-	-	J. P. GUILFORD	R.P.M.	-	-	-	ROMAINE PRIOR MACKIE
J.R.G.	-	-	-	J. RAYMOND GERBERICH	R.S.	-	-	-	RUTH STRANG
J.S.B.	-	-	-	JOHN S. BRUBACHER	R.S.F.	-	-	-	ROBERT S. FISK
J.S.O.	-	-	-	JACOB S. ORLEANS	R.U.	-	-	-	ROBERT ULICH
K.G.	-	-	-	KONRAD GRIES	R.V.M.	-	-	-	RALPH VICKERS MERRY
K.K.	-	-	-	KENNETH KURTZ	R.W.T.	-	-	-	RALPH W. TYLER
K.R.H.	-	-	-	KEITH R. HUTCHISON	S.B.	-	-	-	STRINGFELLOW BARR
K.V.W.	-	-	-	KATE V. WOFFORD	S.D.	-	-	-	SHERMAN DICKINSON
L.B.K.	-	-	-	LUCIEN B. KINNEY	S.S.	-	-	-	SAMUEL STREICHER
L.E.M.	-	-	-	LEONARD E. MEECE	T.C.P.	-	-	-	THOMAS CLARK POLLOCK
L.F.	-	M. BERGSTROM	LOURENCO FILHO		T.H.E.C.	-	-	-	THEODORE HSI-EN CHEN
L.F.W.	-	-	LORIN F. WHEELWRIGHT		T.M.R.	-	-	-	THOMAS M. RISK
L.K.E.	-	-	-	LAURA K. EADS	V.E.	-	-	-	VIVIAN EDMISTON
LL.W.	-	-	-	LEON L. WINSLOW	V.S.B.	-	-	-	V. S. BLANCHARD
L.M.C.	-	-	-	LEO M. CHAMBERLAIN	W.A.H.	-	-	-	W. A. HAGAN
L.M.S.M.	-	-	-	LEROY M. S. MINER	W.A.K.	-	-	-	WILLIAM A. KELLY
L.P.T.	-	-	-	LEWIS PAUL TODD	W.A.S.	-	-	-	W. A. SAUCIER
L.T.H.	-	-	-	L. THOMAS HOPKINS	W.B.A.	-	-	-	W. BOYD ALEXANDER
M.E.C.	-	-	-	MERLE E. CURTI	W.C.B.	-	-	-	WILLIAM C. BAGLEY
M.E.F.	-	-	-	MERLE E. FRAMPTON	W.C.D.	-	-	-	WILBURT C. DAVISON
M.F.S.	-	-	-	MAURICE F. SEAY	W.C.E.	-	-	-	WALTER C. EELLS
M.G.F.	-	-	-	MOWAT G. FRASER	W.C.R.	-	-	-	WALTER C. REUSSER
M.H.	-	-	-	MARJORIE HUNSINGER	W.D.C.	-	-	-	W. D. COMMINS
M.J.T.	-	-	-	MAURICE J. THOMAS	W.E.A.	-	-	-	WILLIAM E. ARNOLD
M.J.V.W.	-	-	-	M. J. VAN WAGENEN	W.F.B.	-	-	-	WILLIAM F. BRUCE
M.S.Q.	-	-	-	MARGARET S. QUAYLE	W.H.B.	-	-	-	WILLIAM H. BRISTOW
M.W.W.	-	-	-	MABEL WHALEY WEBSTER	W.H.H.	-	-	-	W. H. HARTNEY
M.Y.O.	-	-	-	MARION Y. OSTRANDER	W.H.K.	-	-	-	WILLIAM H. KILPATRICK
N.B.H.	-	-	-	NELSON B. HENRY	W.M.W.	-	-	-	WALTER M. WALLACK
O.G.J.	-	-	-	OLIS G. JAMISON	W.R.	-	-	-	WILLIAM C. RUEDIGER
O.V.	-	-	-	OSCAR VERA	W.R.F.	-	-	-	W. R. FLESHER
P.B.G.	-	-	-	PAUL B. GILLEN	W.V.N.	-	-	-	W. VIRGIL NESTRICK
P.E.K.	-	-	-	P. E. KRETZMANN	W.W.B.	-	-	-	W. W. BURR